

2020

Columbus Fire and EMS
Standards of Cover/Community
Risk Assessment



Wednesday, June 24, 2020

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INTRODUCTION

This document serves as the Columbus Fire and Emergency Medical Services (CFEMS) Standard of Cover (SOC) Document. The SOC is one of four key elements of the Commission on Fire Accreditation International (CFAI) accreditation process. The SOC as defined by the CFAI “...are those written procedures that determine the distribution and concentration of fixed and mobile resources of an organization.”

The main purpose for creating and maintaining an SOC is to place a focus on deployment and concentration of resources that ultimately assists the department in ensuring a safe and effective response force for fire suppression, emergency medical service, hazardous materials, technical rescue, and specialty response situations.

The SOC defines CFEMS’ level of service and describes the roles and responsibilities of each service, as well as deployment strategies and operational elements to maintain the stated level of service. In addition, the document contains data elements along with recommendations to enhance the department’s performance. The primary goals of the department are to improve service delivery and increase safety for the citizens of Columbus, Georgia.

One of the challenges within the fire service is keeping pace with an increasing demand for its services. The SOC provides department management with a process to constantly measure and evaluate the level and quality of service delivered to the community. It also provides quantitative data to justify financial requests made to the Columbus Consolidated Government Council.

CFEMS utilizes the SOC and accreditation process to identify shortcomings and integrate the plan to address these shortcomings into the Department’s short-term strategic plan.

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EXECUTIVE SUMMARY

The purpose of the Standards of Cover (SOC) is to define and measure the appropriate level of service based on a comprehensive study of the Department's historical performance, deployment strategies and community risk factors in order to determine the capability of its response system. This process uses a systems approach to evaluate data in the records management system and set standards based on that data. The Department will then be able to match community needs (risks and expectations) with appropriate levels of service to operate in a safe, efficient and effective manner.

This document describes Columbus Department of Fire and Emergency Medical Services' service area, the risks that must be protected and reduced within the community, our capabilities, and our performance objectives and measures. This information will allow the department to identify risks in the community, analyze and establish levels of response service to respond to those risks, and evaluate the Department's performance. Benchmark response times have been established that the Department strives to meet. These response time goals will contribute to our commitment to continually improve how we deliver our services.

The department has established baseline and benchmark performance data for all response categories for the urban setting. The efficient geographic dispersion and placement of resources near service delivery points will lead to maximum effectiveness when responding to the greatest number and types of risk.

In conclusion, this Standards of Cover is a dynamic document that reflects the changing needs of the Columbus Department of Fire and Emergency Medical Services and serves as a mechanism for constantly seeking opportunities for improvement. It is a key element in our plan to reduce risk to our residents and visitors. We are committed to providing the most effective services in a fiscally responsible manner and to continually evaluate our performance in the constant pursuit of improvement.

SECTION I: JURISDICTION PROFILE

The lure of making money from cotton and the waterpower of the Chattahoochee River shaped the Muscogee County seat of Columbus for more than a century after the Georgia legislature created the city in 1828. Located at the head of river navigation, Columbus first boomed as a cotton-trading center. Entrepreneurs quickly harnessed the river's power, and Columbus became one of the South's earliest—and remained one of its largest—mill towns. The creation of neighboring Camp Benning (later Fort Benning) in 1918 added another dimension to the city. By the 1960s Columbus began shedding the image of a mill and military town, as its business and civic leaders diversified the economy, modernized its government, and launched a series of cultural initiatives. By 2000, as the city rediscovered its picturesque river, private and public funding revitalized the original downtown into a premier venue and educational center for the fine and performing arts.

Antebellum Years

In 1828 the state legislature, realizing the economic potential of a location on the Chattahoochee River at the fall line, planned the city and auctioned its lots. The author Washington Irving's contemporary writings about explorer Christopher Columbus probably influenced its naming. The original town consisted of a rectangle, thirteen blocks north to south (from the river to Seventeenth Street) and nine blocks east to west (from the river to Sixth Avenue), nestled against the irregular bank of the river on the west and south. A four-block commons area or greenspace surrounded it on the north, east, and south.

The subsequent availability of land reinforced the obsession about making money from cotton, but only a few realized the dream of becoming wealthy planters. Columbus warehouses and merchants served planters and farmers within a fifty-mile radius. Initially the river linked the city's economy via Apalachicola, Florida, to the world cotton market, primarily to Liverpool, England.

The river's commercial advantage diminished in the 1850s with the arrival of railroads (via branch lines from Fort Valley and from Opelika, Alabama). Steamboats still plied the Chattahoochee, but rails began connecting Columbus with larger markets. The emerging rail center of Atlanta eclipsed Columbus as the western metropolis of Georgia.

The Chattahoochee rivers waterpower made Columbus a manufacturing center. The river powered gristmills and sawmills as early as 1828 and a textile mill north of town by 1838. The city of Columbus,

which controlled the greatest potential waterpower site in the South, never spent any public money developing this resource. Rather than building a canal to deliver waterpower to various locations within the city (such as Augusta did), Columbus simply sold the rights to dam the river and restricted the use of the resulting power to a two-block area along the Chattahoochee (between present-day Twelfth and Fourteenth streets). That decision limited the city's early industrial development. Even so, by the 1850s five water-powered mills produced textiles, flour, and sawn lumber, and at other locations fourteen smaller companies produced a variety of goods. In 1853 the landscape architect Frederick Law Olmsted, an indefatigable traveler and astute observer, declared Columbus the largest manufacturing city south of Richmond, Virginia.

Factories tripled their output and shifted to war-related products. Storekeepers boarded up their windows and began making drums, fifes, India rubber cloth, and sewing tents and uniforms. The Iron Works produced steam engines for ships, while the Navy Yard built the ironclad *Muscogee*. The need for workers pushed the city's population from 10,000 to 15,000.

Swift's factory began on one waterpower lot (1868 and 1880) and then expanded north of Fourteenth Street, with new mills appearing in 1887, 1904, 1916, 1926, and 1950. Young's and Swift's mills became the foundations of two dynasties. As the city's economy expanded, industries moved into the remaining land on the East Commons, and middle-class suburbs grew in the Wynnton area, which was first served by streetcars and then by automobiles.

Mayor L. H. Chappell (1897-1907 and 1911-13) modernized the city. During the Spanish-American War (1898) he lured a military training camp to town, paved and curbed downtown streets, built sewers and steel bridges, planted trees, and created the modern municipal water works, which transformed the muddy Chattahoochee into drinking water.

In September 1918, the U.S. War Department created Camp Benning, located on Macon Road near what is now the public library. Extensive lobbying efforts resulted in a permanent camp, Fort Benning, in 1922. For almost twenty years it functioned primarily as a training center for infantry officers. During World War II (1941-45) the post assumed a more expanded mission.

In 1919 Ernest Woodruff, a Columbus native and Atlanta businessman, engineered the purchase of Coca-Cola from the Candler family for \$25 million. W. C. Bradley, who was chair of the board of Coca-Cola for twenty-seven years, served as Woodruff's partner, selling stock to friends and

acquaintances, primarily in the Chattahoochee Valley. That investment still pays significant dividends to the community.

By 1927 the city had entered the Great Depression as the demand for cotton textiles plummeted. In the 1930s several Columbus mills borrowed money from New York banks to continue running. Construction at Fort Benning also provided much-needed jobs. By 1940 Fort Benning was brimming with activity. Meanwhile, a Greater Columbus Committee outlined new goals. These resulted in consolidating the county and city schools in 1949 and establishing Columbus College (later Columbus State University) in a closed mill in 1958. Until that time Columbus was the largest southern city without a college. In 1961 the Columbus Area Vocational-Technical School (later Columbus Technical College) was founded.

By the 1970s the Columbus Storefront economy had changed. Local businessmen stopped excluding new industries that might raise local wages and began seeking new manufacturers, such as Dolly Madison Bakery (1970) and Pratt and Whitney (1984), which made jet engine parts. But local initiative created the most dynamic enterprises—Aflac Insurance, Synovus Financial Corporation, and Total System Services.

According to the 2010 U.S. census, the population of Columbus is 189,885, the third-largest city in the state. By 2003 Columbus had renewed its appreciation for the Chattahoochee River. Under federal court order to build a combined sewer-overflow system, the Columbus Water Works began developing the Riverwalk, which is to extend for twenty miles, from Fort Benning, south of town, to Lake Oliver to the north. Once the reason for the city's establishment, the Chattahoochee River will once again become the most distinctive feature of the city.

Municipal projects have included construction of a softball complex, which hosted the 1996 Olympics softball competition; construction of the Chattahoochee River Walk; construction of the National Civil War Naval Museum at Port Columbus, construction of the Coca-Cola Space Science Center, the expansion of the Columbus Museum, and road improvements to include a new downtown bridge crossing the Chattahoochee River to Phenix City. During the late 1990s, commercial activity expanded north of downtown along the I-185 corridor.

During the 2000s, expansion and historic preservation continued throughout the city. South Commons has been revitalized. This area combines the 1996 Olympic softball competition complex, A. J.

McClung Memorial Stadium, Golden Park, the Columbus Civic Center, and the Jonathan Hatcher Skateboard Park.



The National Infantry Museum and Soldier Center, which opened in 2009, stands just outside the gates of Fort Benning. The facility includes a museum that houses thousands of unique artifacts relating to the U.S. Infantry's role in shaping the nation's history. These artifacts were formerly housed in the base's National Infantry Museum, which received a Governor's Award in the Humanities in 1991.



The River Center for the Performing Arts, which opened in 2002, houses Columbus State University's music department and is the city's venue for fine and performing arts. In 2002, Columbus State's art and drama departments moved to downtown locations. Such initiatives have provided Columbus with a cultural niche and with vibrant and modern architecture mixed among older brick facades.



The "Ready to Raft 2012" campaign is a project that created an estimated 700 new jobs and is projected to bring in \$42 million annually to the Columbus area. The project resulted in the longest urban whitewater rafting venue in the world. This, in addition to other outdoor and non-outdoor tourist attractions, led to around 1.9 million visitors coming to Columbus during the fiscal year 2018, according to the Columbus Convention and Visitors Bureau.

The Blue Heron zip line was opened in July 2014 and consists of a triple-zip lines across the Chattahoochee River, treetop aerial course consisting of 10 obstacles, 400 ft. treetop triple-zip lines along the banks of the Chattahoochee River. The zip lines run from Columbus Georgia to Phenix City Alabama and back across from Phenix City Alabama to Columbus Georgia.

LOCATION

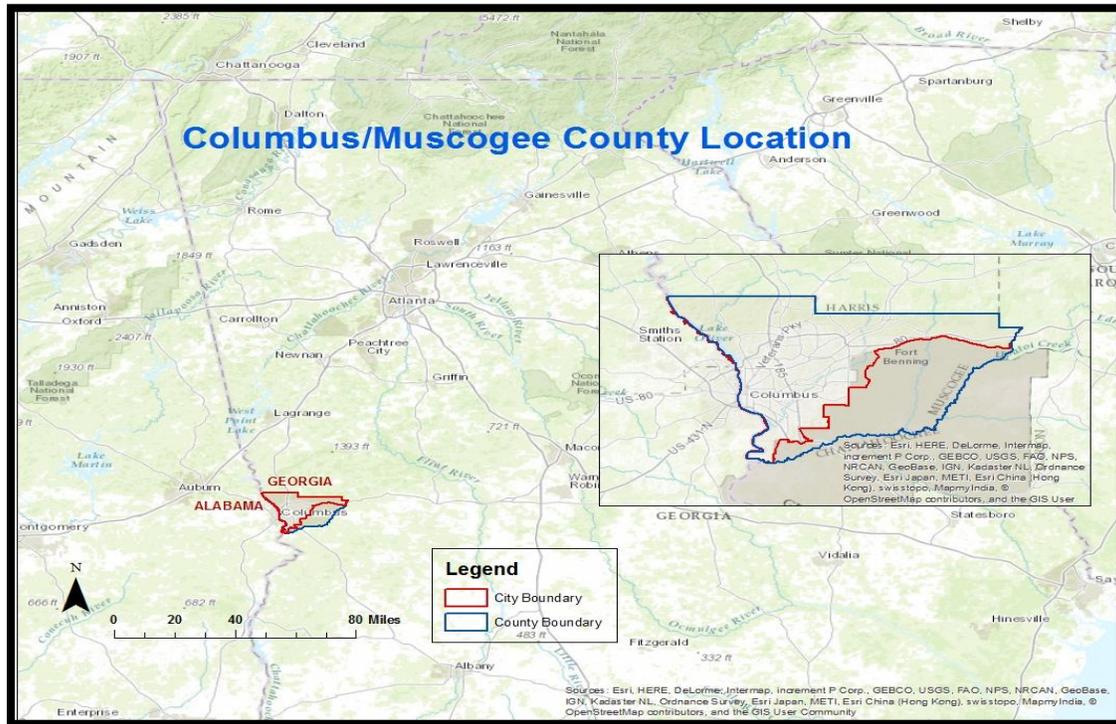


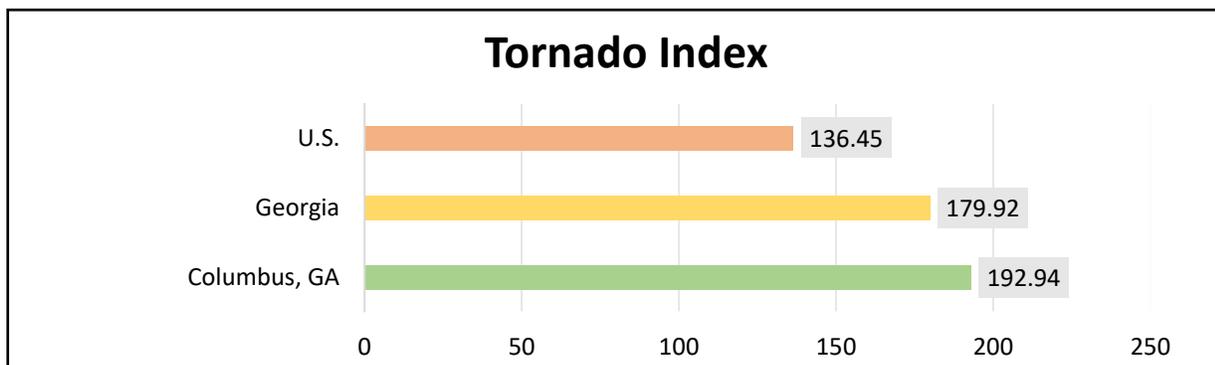
Figure 1.1 Map: Service Area Location

Interstate 185 runs east of the city, with access from exits 1, 3, 4, 6, 7, 8, 10, 12, and 14 to the city. Interstate 185 runs from Ft. Benning north 47 miles to Interstate 85. U.S. Route 27, U.S. Route 280, and Georgia State Road 520 (known as South Georgia Parkway) all meet in the interior of the city. U.S. Route 80 runs north of the city, locally known as J.R. Allen Parkway; Alternate U.S. Route 27 and Georgia State Route 85 run northeast from the city, locally known as Bill Heard Expressway.

The corporate boundaries of Muscogee, County encompass 220 square miles of which 216.3 square miles (560 km²) is land and 4.7 square miles (12 km²) (2.14%) is water. This includes approximately 3000 acres acquired in a land swap completed in 2001 between Fort Benning, Chattahoochee County and the City of Columbus. The 3000 acres (4.6 square miles) acquired in the land swap will be utilized for industrial development and recreational use. The addition of this property to the jurisdictional area will increase the need for fire protection service in the future. See Figure 1.1 for city location. The city is located at: 32°29'23"N 84°56'26"W 32.489608°N 84.940422°W.

CLIMATE

Daytime summer temperatures often reach highs in the mid-90s and low temperatures in the winter average in the upper 30s. Columbus is often considered a dividing line or "natural snowline" of the southeastern United States with areas north of the city receiving snowfall annually, with areas to the south typically not receiving snowfall every year or at all. Columbus, Georgia, gets 48 inches of rain per year. The US average is 39. Snowfall is 0 inches. The average US city gets 26 inches of snow per year. The number of days with any measurable precipitation is 71. Columbus, GA is a High-Risk area for tornados. According to records, the largest tornado in the Columbus area was an F3 in 1954 that caused seven injuries and zero deaths. Columbus has a higher tornado index level than the state or nation (Figure 1.2 Tornado Index). The higher the level the higher chance of a tornado event. Columbus has a humid subtropical climate according to the Koppen climate classification system.



<http://www.spc.noaa.gov/wcm/#data> Figure 1.2 Chart: Tornado Index

Monthly Averages & Records - °F °C						
Date	Average Low	Average High	Record Low	Record High	Average Precipitation	Average Snow
January	37°	57°	-2° (1985)	83° (1949)	4.78"	0.4"
February	39°	62°	10° (1996)	83° (1996)	4.48"	0.5"
March	46°	69°	16° (1980)	89° (2007)	5.75"	0.1"
April	52°	77°	28° (1950)	93° (1986)	3.84"	0"
May	61°	83°	39° (1963)	97° (2006)	3.62"	0"
June	69°	90°	44° (1956)	104° (1978)	3.51"	0"
July	72°	92°	59° (1967)	104° (1986)	5.04"	0"
August	71°	91°	57° (1952)	104° (2007)	3.78"	0"
September	66°	86°	38° (1967)	100° (1990)	3.07"	0"
October	55°	77°	24° (1952)	96° (1954)	2.33"	0"
November	46°	68°	10° (1950)	86° (2003)	3.97"	0"
December	39°	59°	4° (1962)	82° (1977)	4.4"	0.1"

Source: Intellicast 2017 Figure 1.3 Chart: Climate Averages

POPULATION

As of the 2010 U.S. Census, Columbus had a total population of 189,885, up from 186,291 in the 2000 Census. The population density was 861.4 people per square mile (332.6/km²). There were 82,690 housing units at an average density of 352.3 per square mile (136.0/km²). The racial makeup of the city was 46.3% White, 45.5% African American, 2.2% Asian, 0.2% Native American, 0.14% Pacific Islander, and 1.90% from other races. Hispanic or Latino of any race were 6.4% of the population. (Figure 1.5 Chart: Demographic (2010) Census) The estimated population for Columbus in 2018 was 197,160. (Figure 1.4 Historical Population)

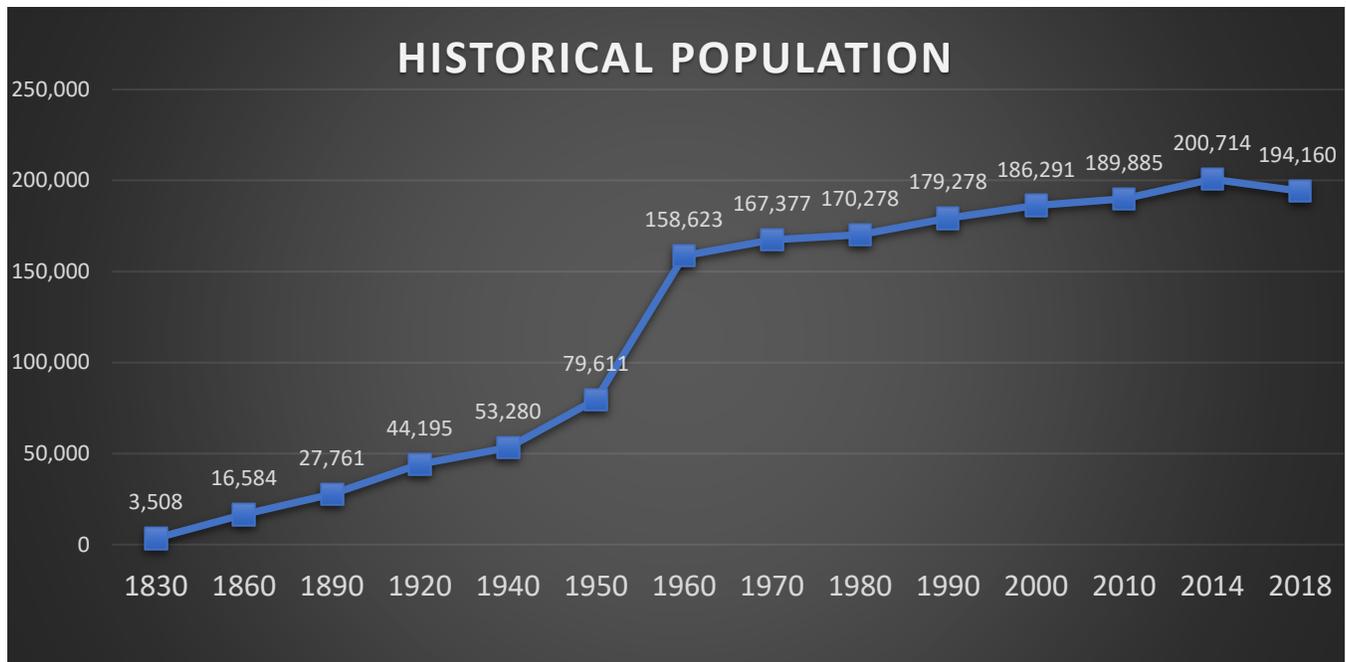


Figure 1.4 Chart: Historical Population

	Year 2010	Year 2015	Variance	% Variance
0-19 Years	56,012	56,395	+383	+.68
20-44	65,469	73,497	+8,028	+12.2
45-64 Years	44,322	46,945	+2,623	+5.91
65-Older	21,829	23,448	+1,619	+7.41
Total	187,632	200,285	12,653	+6.74

Figure 1.5 Chart: Demographic (2010) Census

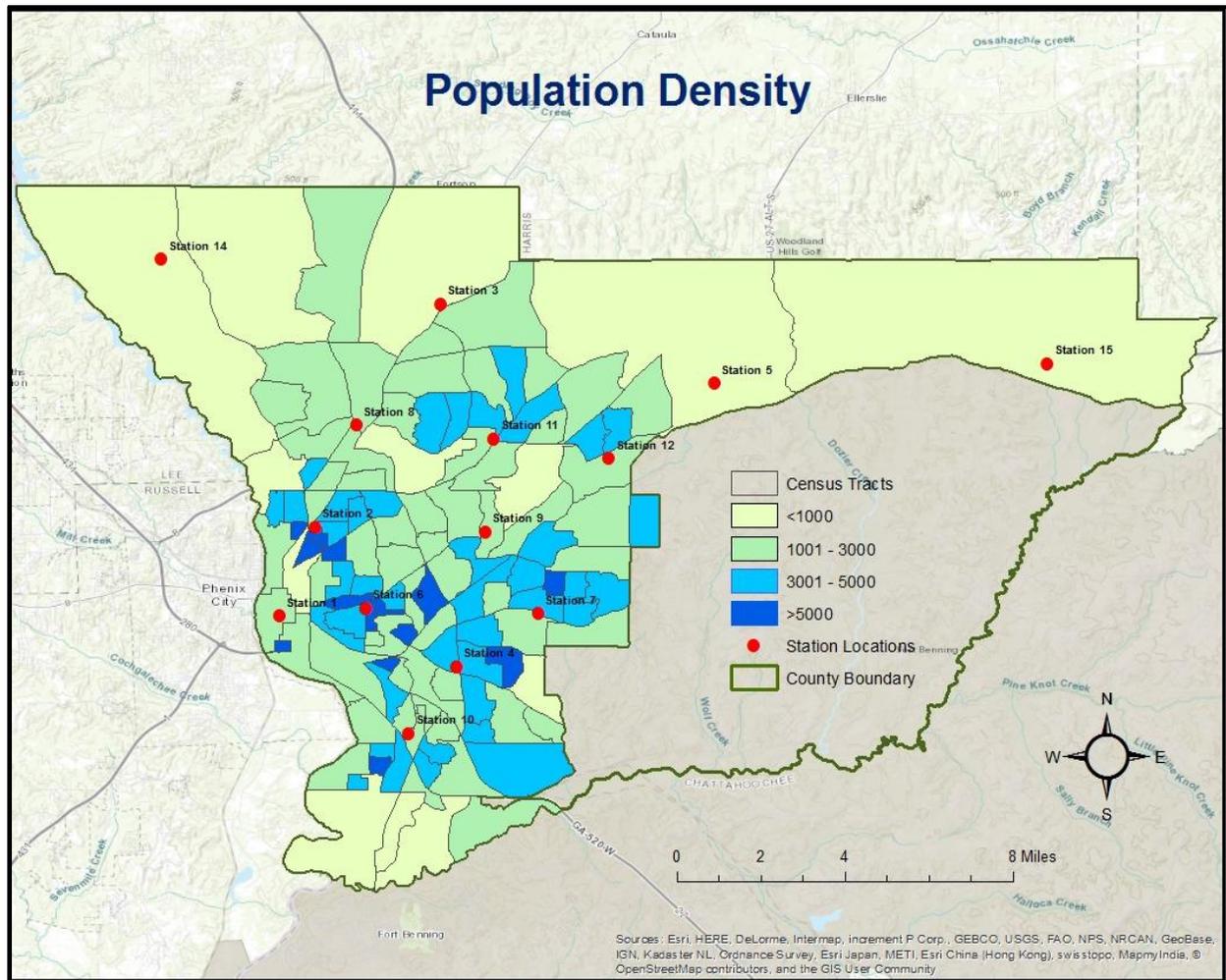
There were 69,819 households out of which 34.6% had children under the age of 18 living with them, 44.7% were married couples living together, 19.6% had a female householder with no husband present, and 31.7% were non-families. 26.7% of all households were made up of individuals and 9.4% had someone living alone who was 65 years of age or older. The average household size was 2.54 and the average family size was 3.08.

In the city, the population is diverse with 25.6% under the age of 18, 11.9% from 18 to 24, 29.8% from 25 to 44, 19.7% from 45 to 64, and 11.6% who were 65 years of age or older. The median age was 33

years. For every 100 females, there were 94.7 males. For every 100 females age 18 and over, there were 91.6 males.

The median income for a household in the city was \$41,331, and the 2000 median income for a family was 41,244. Males had a median income of \$30,238 versus \$24,336 for females. The per capita income for the city was \$22,514. About 12.8% of families and 15.7% of the population were below the poverty line, including 22.0% of those under age 18 and 12.1% of those age 65 or over.

Figure 1.6: Population Density Map



BUSINESS AND RECREATION

The Columbus, Georgia Metropolitan Statistical Area (GA MSA), as defined by the United States Census Bureau, is an area consisting of four counties in Georgia and one county in Alabama, anchored by the city of Columbus. As of the 2010 census, the MSA had a population of 296,506 (though a July 1, 2019 estimate placed the population at 305,871). The Bureau of Labor Statistics show GA MSA labor force change from 2015-2019 as; Labor Force decreased from 123,895 to 123,338 (-557), Employment increased from 115,275 to 118,385 (3,110), Unemployment has decreased from 8620 to 4953, and Unemployment Rate has decreased from 7.0 to 4.0. In Columbus, there are 13 major Private Sector Employers (500 or more employees). They provide 25,890 jobs or 26 % of the workforce of Columbus GA-AL MSA. Top 10 employers for GA MSA are listed in Figure 1.6.

Figure 1.7: Principle Employers

Columbus GA-AL MSA			
Principle Employers for Columbus 2019			
Employer	Employees	Rank	% of Total
Fort Benning Military Reservation (U.S. Army)	42,870	1	43.16%
TSYS	5,500	2	5.54%
Muscogee County School District	5,125	3	5.16%
AFLAC, Inc.	3,800	4	3.83%
Columbus Consolidated Government	3,000	5	3.02%
Columbus Regional Healthcare System	2,850	6	2.87%
St. Francis Hospital, Inc.	2,500	7	2.52%
Pratt & Whitney	2,250	8	2.27%
Blue Cross/Blue Shield of Georgia	1,325	9	1.33%
Synovus	1,385	10	1.39%
Total Top 10	70,605		
Total Employees	99,318		71.09%
Source: Columbus Chamber of Commerce			

Columbus offers a wide range of recreational opportunities. Columbus has the longest urban whitewater complex in the world (Figure 1.7). USA Today picked the Chattahoochee Whitewater Park as one of the Top 12 man-made Adventures in the World. The course consists of class II-V whitewater and is one of the most exciting sections of whitewater in the US. Two types of runs (Classic and Challenge) are available on the same 2.5-mile stretch of river due to the dam-controlled release which occurs daily.

Figure 1.7 Whitewater



Cooper Creek Park is home to the largest clay court tennis facility, the thirty lighted courts make Cooper Creek the largest clay-court public tennis facility in the United States (Figure 1.8). The Columbus Regional Tennis Association (CORTA) has its offices at Cooper Creek, and it is the second biggest United States Tennis Association (USTA) organization in the South.

Figure 1.8 Tennis Facility



The Fall Line Trace Bike Trail (Figure 1.9) runs from the Riverwalk through Columbus West to East, for 11 miles. Extending from downtown Columbus to Psalmond Road in Midland, the trail offers an eclectic cross-section of the community: busy shopping areas, business districts, a medical complex, neighborhoods, the Columbus State University campus and other schools. A connection to the beautiful and historical 15-mile Chattahoochee Riverwalk at the trail's southern end adds to its appeal.



Figure 1.9 Fall Line Trace, Bike Trail

GROWTH AND NEW CONSTRUCTION

The Chattahoochee River is the region’s greatest natural resource. In a previous era, the river helped establish Greater Columbus as a textile hub. While industry has long since evolved in a different direction, the river can continue to power economic growth by serving as an amenity and focal point around which people can gather. By continuing to develop and activate its riverfront, particularly the geologically stunning stretches through the core of the region, Greater Columbus can significantly improve its ability to attract and retain talented individuals, the most important growth consideration in the modern economy. Through decades of public and private investments in Greater Columbus have significantly improved the river, river surroundings, and the ability of individuals to access and enjoy the river. Greater Columbus now has an opportunity to go even further to differentiate its riverfront from those of other regions, which could in turn help to address or overcome other challenges and shortcomings, such as low growth rates, limited Interstate connectivity, and a lack of external awareness.

In 2014, a group of public, private, and nonprofit leaders from across the Greater Columbus Georgia Region came together to create a comprehensive small community and economic development strategic plan. This 10-month process culminated in the Regional Prosperity Initiative, which addressed a full range of issues influencing the region’s competitiveness, prosperity and quality of life. The Regional Prosperity Initiative brought together local leaders and the expertise of Market Street Services– a national economic, community and workforce development consulting firm– to analyze the competitiveness of Greater Columbus as a place to live, learn, work, visit and do business. This initiative promises to transform Greater Columbus over the next decade and beyond. The implementation of this plan is the Columbus 2025 initiative. This name better reflects the central role Columbus plays in the region’s future success. This strategic plan builds on the work done through the Regional Prosperity Initiative to better understand the competitive landscape for talent and economic development. We learned that we have accomplished much in our efforts to transform Greater Columbus into a community ready for the 21st Century. We also learned that we have a long way to go to achieve the Columbus 2025 goals of reducing poverty, increasing prosperity and improving the quality of life for everyone who lives here.

Recommended strategies include:

- Develop a physical, flexible and professionally staffed center for entrepreneurial activities in a highly visible location,
- Formalize a collaborative Business Retention and Expansion (BRE) program to ensure optimal conditions for existing firms to thrive,
- Develop a comprehensive economic development marketing program,
- Create cradle-to-career (C2C) partnerships to align education, training, business and social services to increase talent levels in Greater Columbus,
- Collaborate across state lines to further promote activation of the Chattahoochee Riverfront through the region's core.

Columbus conducted a study of the feasibility of a high-speed rail system from Columbus to Atlanta-Hartsfield Airport. The Columbus to Atlanta corridor is deemed feasible for high-speed passenger rail service based on the data collected and the technical analysis. Moving forward, the Columbus Consolidated Government will begin working on both immediate and long-term next steps for successful implementation. These include incorporating the study into the Georgia State Rail Plan, preparing for the next planning and environmental assessments, and identifying funding/financing strategies for implementation.

The Opportunity Zone Program was adopted in 2015 to provide an incentive to businesses and developers to create jobs. The benefit to a business locating within the boundaries of a designated Opportunity Zone, where the business creates eligible net new jobs to Georgia, is the Georgia Job Tax Credit. This credit is up to \$3,500 per job created. In Muscogee County the maximum benefit is \$2,500 per job created. New or expanding businesses are eligible to participate.

The State of Georgia is working on creating a 1,500-acre park in north Columbus along the Chattahoochee River on Lake Oliver (Figure 1.10). The master plan includes cottages, RV and tent camping, lake view platform campsites, hiking and biking trails, disc golf, greenspace for gatherings such as festivals, and more.

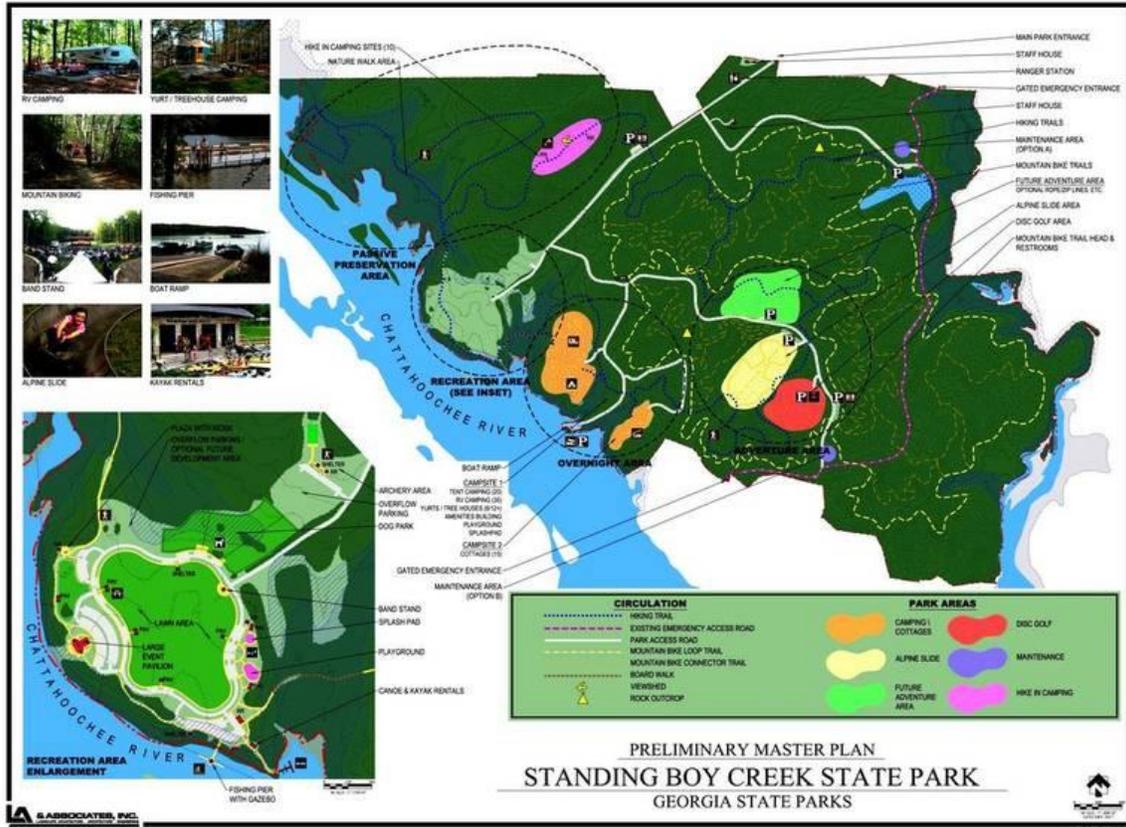


Figure 1.10 Proposed State Park

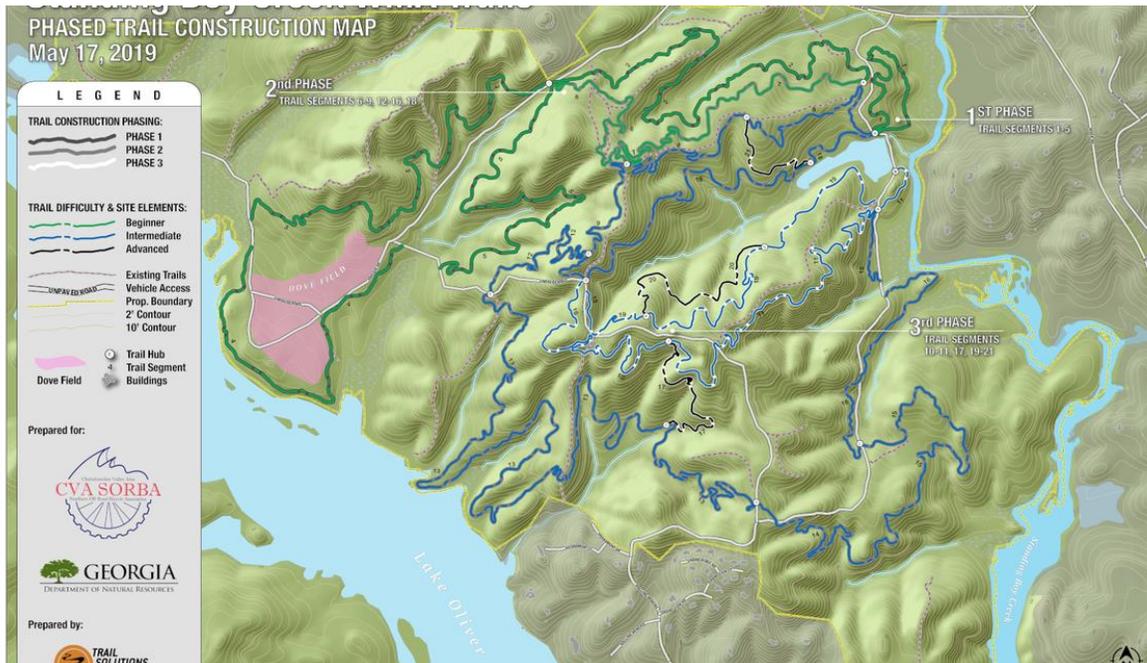
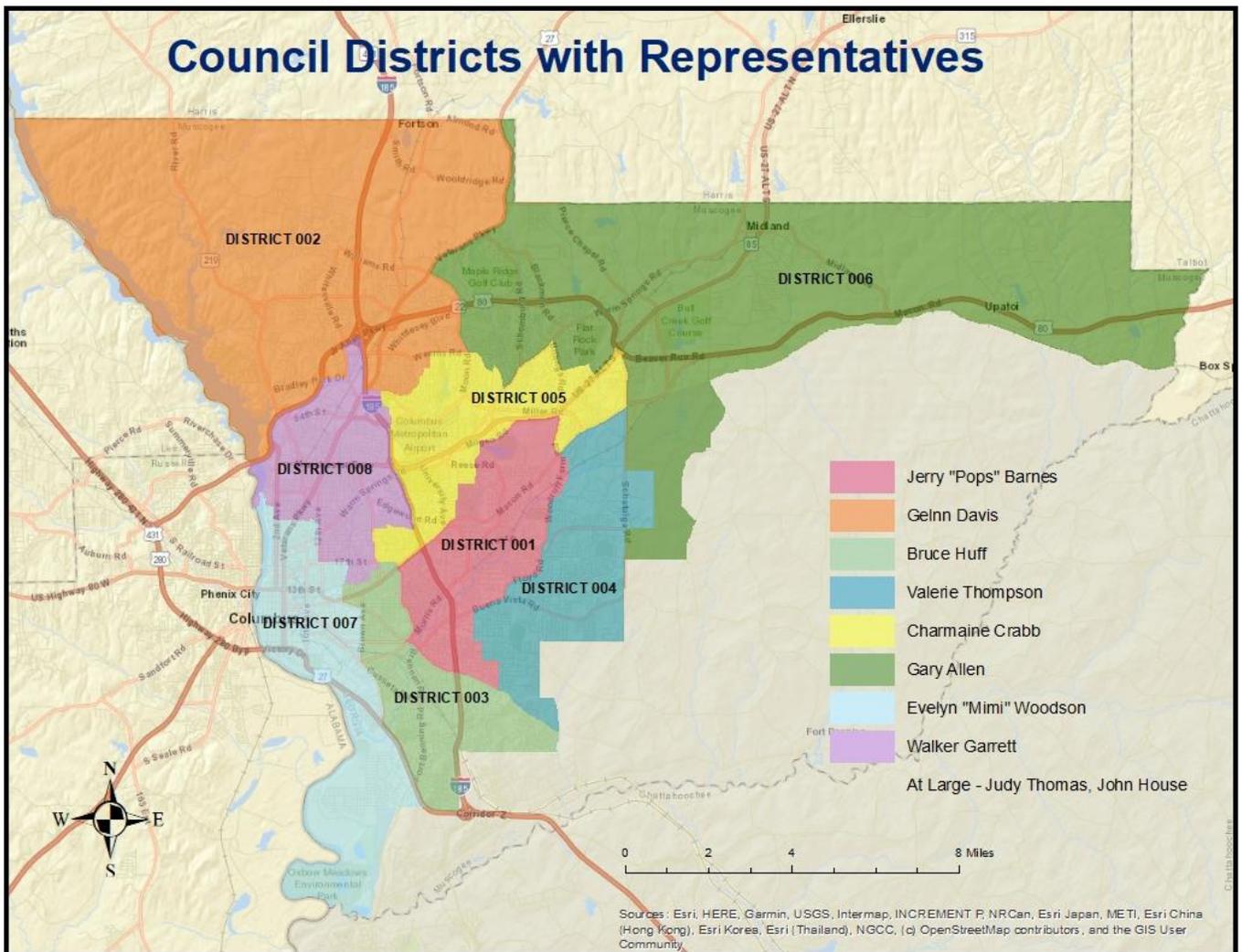


Figure 1.11 Mountain Bike Trail – Standing Boy Creek State Park

GOVERNANCE

Columbus, Georgia is a consolidated government, which establishes a single countywide government with powers and jurisdiction throughout the territorial limits of Muscogee County. The Charter of the Columbus Consolidated Government provides for a mayor-council-city manager form of government. The mayor is aided by a city manager that, in the performance of his duties, is responsible to the mayor. The elected mayor, who also serves as the City’s Public Safety Director, is a full-time position. The Council consists of ten (10) elected councilor positions of which eight (8) members are elected from established council districts and two (2) are at large elected members. (See figure 1.11)

Figure 1.11: Council Districts



The Consolidated Government provided by the Charter shall be known as the Mayor-Council-City Manager form of government. The Mayor shall be aided by City Officers, who, in the performance of their duties, shall be responsible and accountable to the Mayor except as otherwise provided in the Charter, by Georgia Law or by Rules of the State Bar of Georgia. Those persons who are deemed to be City Officers are set forth in sec. 4-300 of the Charter, as amended. Section 4-300 states the City Officers of Columbus, Georgia shall consist of the City Manager, the City Attorney, the Chief of the Columbus Police Department, the Chief of the Columbus Fire and EMS Department and the Warden of the Muscogee County Prison, all of whom shall be responsible to and accountable to the Mayor of Columbus, Georgia, except as otherwise provided in the Charter, by Georgia law or by Rules of the State Bar of Georgia.

FUNDING

The Department is funded through the Columbus Consolidated Government’s General Fund Budget. The Department’s fiscal year 2020 approved budget including OLOST is **\$27,130,977** (Figure 1.12 Fiscal Year 2019 Budget).

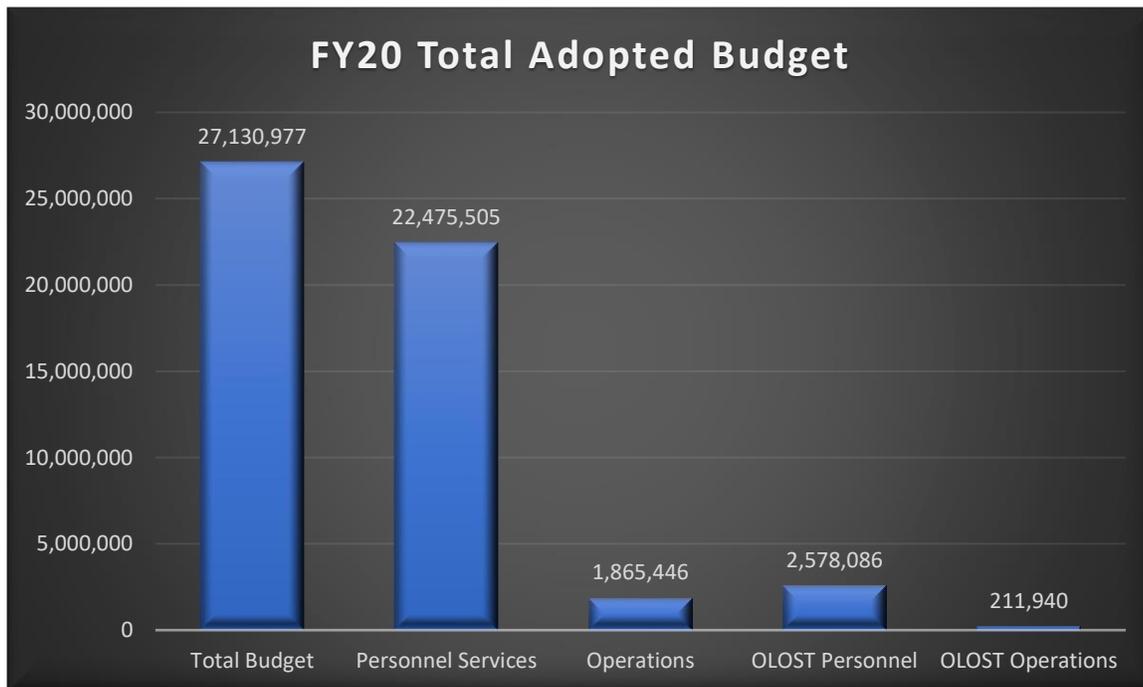


Figure 1.12

Capital Improvement Program

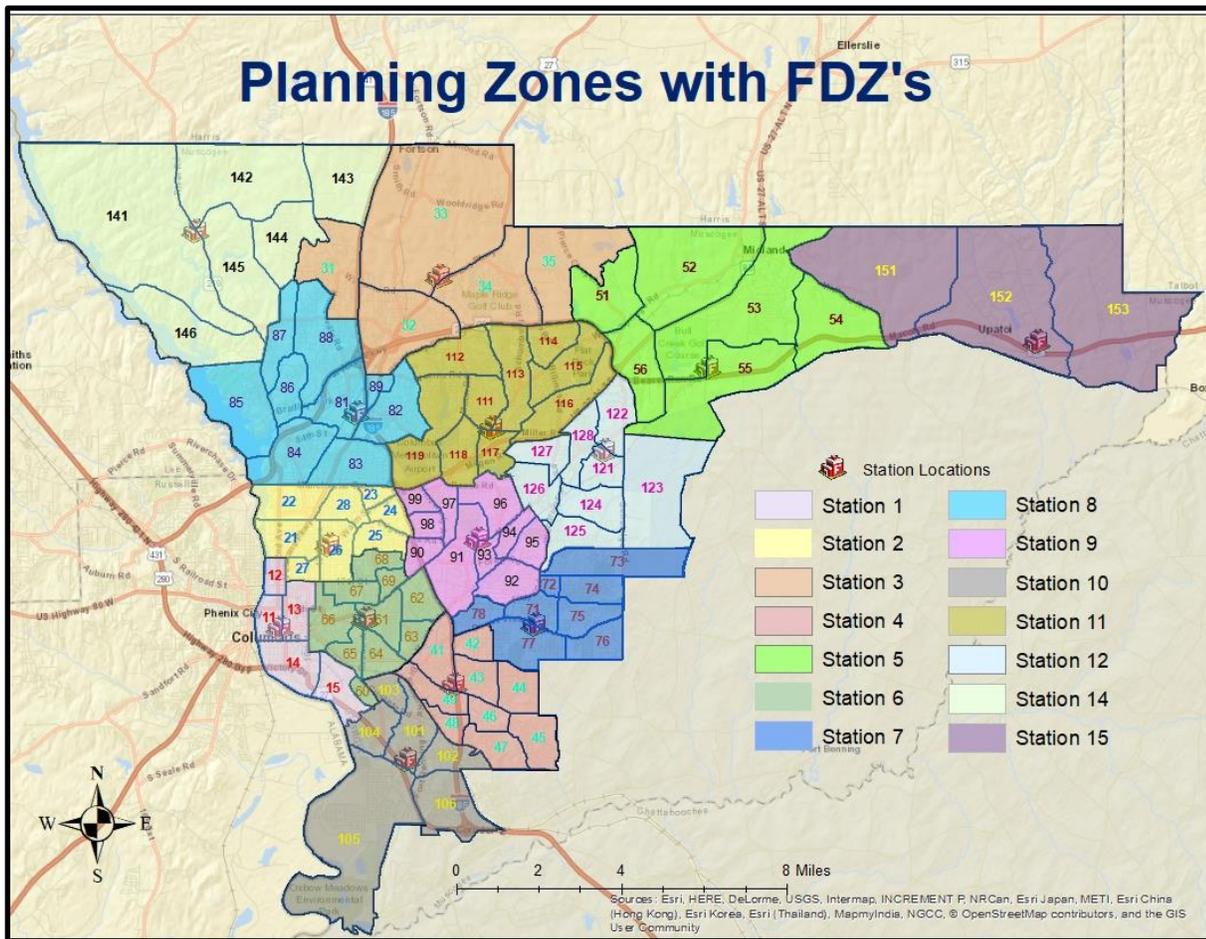
The City (Fire/EMS, 911 Dispatch and Columbus Water Works) were re-evaluated by the Insurance Services Office (ISO) in February 2017. Results of the ISO review became available in June of 2017.

CFEMS received a Public Protection Classification (PPC) rating of 1/1x; improving from a PPC of 2/9. Station 9 was completed in January of 2017. New drill tower, training pavilion and control room were completed in July of 2017. The department currently has 6 Engines, 2 Ladders, 2 Squads, and 6 Ambulances under a lease/purchase that expends 1 million dollars yearly out of the OLOST funds account.

SECTION II: DOCUMENTATION OF AREA CHARACTERISTICS

CFEMS' 220 square mile jurisdiction is divided into three battalions with 14 Stations distributed throughout the jurisdiction. For dispatching purposes, the service area is broken down into 14 station territories or "planning zones." The station territories are further subdivided into geographic areas called Fire Demand Zones (FDZ). There are 102 FDZs within CFEMS' service area (Figure 2.1 Planning Zones). The type of response allows the closest unit to respond based off the location of the incident within an FDZ.

Figure 2.1 Planning Zones



SERVICE AREA BOUNDARIES

Geographical boundaries for the Columbus Department of Fire and Emergency Medical Services are the boundary lines of Muscogee County (Columbus City Charter Section 1-102) excluding that area which lies within the boundaries of the Fort Benning Military Reservation. Boundaries were established by the consolidation of the City and County Governments in 1971 (Consolidated Government). Mutual aid agreements exist with surrounding communities. Surrounding agencies requiring assistance must make requests through proper channels as detailed in mutual aid agreements. The geographical boundaries

have been set by law and have been clear and understood by all governmental entities involved. (Figure 2.2: Service Area)

MUTUAL AID BOUNDARIES

The department maintains Statewide Mutual Aid Agreement (SWMA) with local, state and federal agencies to provide for additional assistance and resources to this jurisdiction in the event of a disaster. These agreements are reciprocal in scope and clearly define the department's responsibilities, limitations and liabilities in the event these agreements become activated. The department currently maintains all hazard/all emergencies mutual aid agreements with all contiguous Fire and EMS departments and county governments. The department is also a member agency of the Georgia Mutual Aid Group and is designated as Georgia Search and Rescue (GSAR) Task Force 4A. These agreements have been adopted by the governing authority and signed by the Mayor.

Through these agreements the department has immediate access to additional equipment and staffing to respond to and mitigate major emergency situations in the most cost-efficient manner possible. The agreements are mutually beneficial to Columbus and the surrounding communities.

The department does not have any automatic aid agreements with any of the surrounding agencies. This is due primarily to the fact that the surrounding departments are either not strategically located or staffed to respond within our jurisdiction in a timely manner. (Figure 2.2 Mutual Aid)

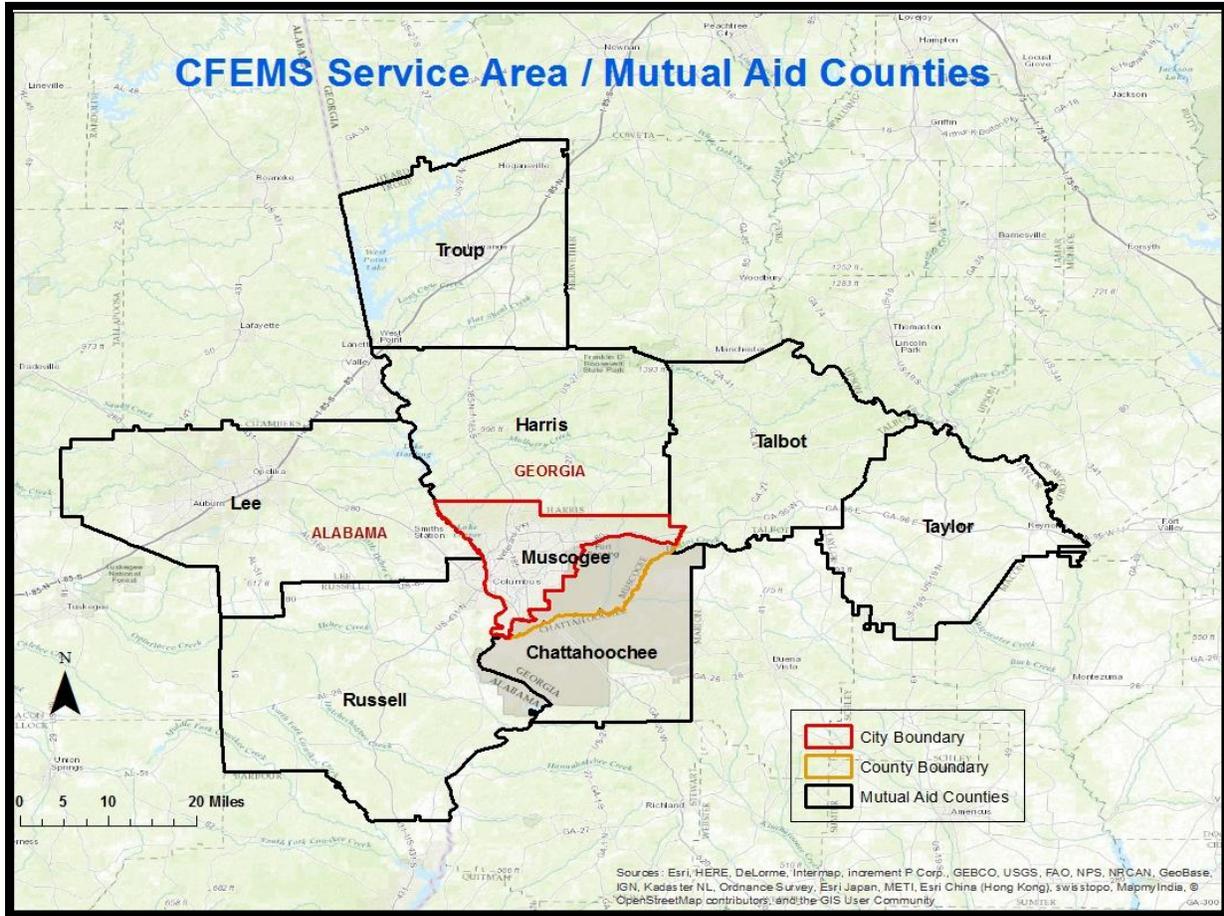


Figure 2.2 Mutual Aid

CRITICAL INFRASTRUCTURE

Critical infrastructure are systems needed in order to maintain minimum services for operation of a community. Critical infrastructure includes transportation, communications, water, power, and healthcare. Columbus Department of Fire and Emergency Medical Services (CFEMS) assesses the critical infrastructure within the planning zones through pre-fire planning activities and annual inspections through the fire prevention division.

Roadways are maintained and repaired by the city’s Public Works department. The street maintenance division is responsible for over 650 miles of curbs and gutters, along with over 900 miles of public sidewalks. They provide services to Columbus residents and government personnel related to street repairs and maintenance, which includes city streets and state routes, sidewalk repair, curb/gutter, fence, guardrail repairs and graffiti removal. Columbus has 26 miles of rail lines that run through the city;

operated by Norfolk Southern and Georgia Southwestern Railroad. Commodities carried most often include Chemicals, Forest Products, Lumber, Petroleum Products, Pulp and Paper. (Figure 2.6 Critical Infrastructure)

Columbus provides public transportation through the METRA department. METRA currently operating twelve bus routes in the Columbus area, Monday through Saturday, excluding holidays. METRA also provides ADA Complementary Paratransit Service to eligible persons with disabilities who are, because of their disability, unable to board, ride or disembark from an accessible vehicle in METRA's regular bus service.

Columbus Water Works (CWW) provides water and a sanitary sewer system to the city of Columbus. CWW also helps to identify elements of the water system to include hydrants, water mains, system issues to include outages and improvements, maintenance, and care. The first water treatment plant was built in 1964 and currently operates as a modern treatment facility which serves the entire community. CWW operates two water treatment facilities in Columbus and one in Ft. Benning that serve Columbus, Fort Benning, and parts of Harris and Talbot counties.

Georgia Power supplies the majority of Columbus with power. Flint Energies and Diverse Power provide power to some rural areas of the city. Two of Georgia Powers nineteen hydroelectric dams are in Muscogee County, they are; North Highlands Hydroelectric Generating Plant, and Oliver Dam Hydroelectric Generating Plant (Figure 2.3 Dams).

LAKE OLIVER DAM



NORTH HIGHLAND DAM



Figure 2.3 Dams

Columbus currently has three hospitals with emergency departments (ED). Piedmont Columbus Regional’s Midtown Campus (Figure 2.4 Medical Center) is a Level 2 trauma center and serves most of west central Georgia and East Central Alabama. St. Francis Hospital (Figure 2.5 St. Francis) is the regional cardiac hospital; they have experienced tremendous growth in the last several years. Piedmont Northside Campus opened in 2018 and has been effective in reducing patient volume for the other two hospital ED’s. The addition of a third ED has reduced ambulance out-of-service time at the hospital, but only slightly. Hospitals have responded by implementing changes to personnel and processes in an effort to reduce ambulance out of service time. CFEMS will continue to work diligently with hospitals to share ideas for better delivery of services.

Figure 2.4 Piedmont Midtown

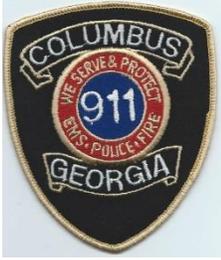


Figure 2.5 St. Francis



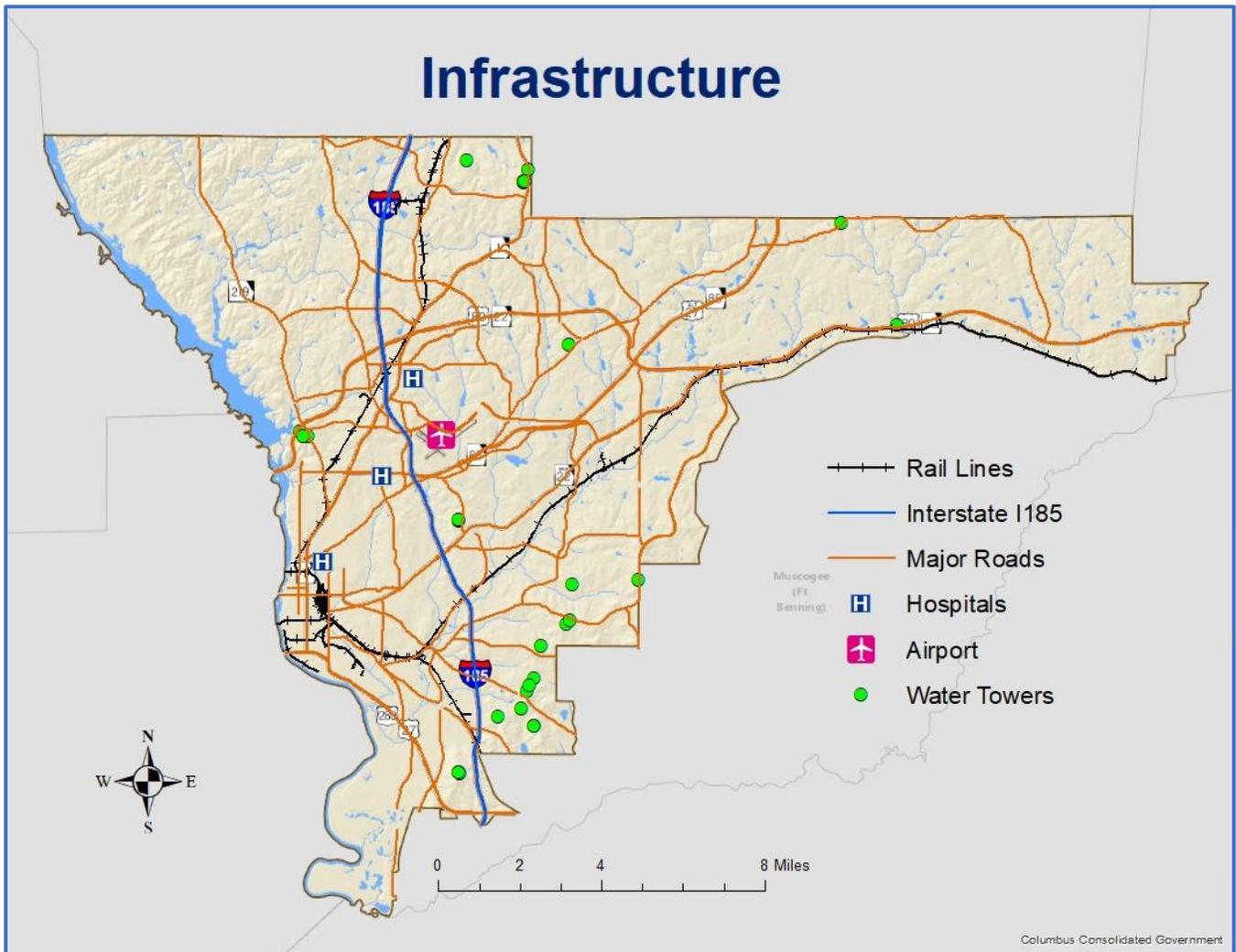
Piedmont Northside





The 911 communications center Computer Aided Dispatch (CAD) was upgraded to Premier 1 CAD in September 2019. The 911 center maintains an operational back-up center that can be accessed quickly if the main center becomes non-operational. Maintaining radio communications has been a challenge at times due to issues with the main communications tower and its power source. The temporary solution has been for public works to check the main communications back-up generator for readiness.

Figure 2.6 Critical Infrastructure



SECTION III: DESCRIPTION OF AGENCY PROGRAMS AND SERVICES

VISION

To be a model of excellence by continuing as an innovative leader in meeting the ever changing needs of our community and setting the example for other departments through professional development, research and technology while encouraging unity and teamwork through the free exchange of ideas both internally and externally.

MISSION

The Columbus Department of Fire and Emergency Medical Services is dedicated to the protection of life, property, and the environment by providing professional and courteous services of exceptional quality in the areas of Fire Prevention, Fire Safety Education, Fire Suppression, Advanced Life Support, Basic Life Support, Hazardous Materials Response, Homeland Security/Emergency Management, Fire/Cause and Origin Determination, Investigation, and Rescue at an acceptable cost to the community.

VALUES

We, the members of the Columbus Department of Fire and Emergency Medical Services are committed to the following values in our interactions with coworkers and customers:

- Professionalism – In application, appearance and attitude
- Integrity – Demonstrate honesty and fairness
- Compassion – Demonstrate kindness and empathy
- Accountability – Professionally, personally and fiscally responsible for our actions
- Respect – For each other, our Department, the Consolidated Government and our customers
- Diversity – Be open minded and responsive to the uniqueness of our community without regard to race, age, gender, religion or ethnic origin
- Commitment – In all department endeavors
- Teamwork – Encourage unity and a cooperative attitude

HISTORY OF CFEMS

Columbus' first volunteer fire department was established in 1831. In 1843, the service was ordained and chartered by Georgia State Legislation. It operated under a semi-paid plan from 1887-1898.

In 1898, city council adopted by ordinance a full paid department with twenty-six members. The ordinance gave the mayor and council the authority to elect the Fire Chief. As the city grew more personnel and apparatus were authorized and put in service.

In 2001, the Columbus Fire Department and Columbus Emergency Medical Services merged to become Columbus Fire and Emergency Medical Services. The merger, although stressful in the beginning, has produced a department better equipped to respond the needs of the community. All apparatus are staffed with a Georgia state certified firefighter that hold either an EMT-I, AEMT, or Paramedic certification.

Today, the Department provides community risk reduction, fire suppression, emergency medical services, hazardous materials response, and technical rescue services to the citizens and visitors of Columbus from fourteen (14) locations throughout the City. The department is currently organized into five (5) divisions: Fire Prevention, Operations, Logistics/Support, Emergency Management, and Training. The Chief of CFEMS serves as the Chief Administrative Officer and is responsible for the overall operation of the department. The Chief reports directly to the Mayor who serves as the Public Safety Director.

The City of Columbus has a PPC rating of 1/1x and the Department has attained International Accreditation through the Center for Public Safety Excellence since 2002.

The department currently operates 30 daily units; technical rescue, hazardous materials and emergency management have units that operate as needed. Total number or percentage of operations personnel who are currently medically certified is 309 (95%). In 2002, the department began training personnel at the EMT-I level and in 2013 AEMT. Since the in-house EMT-I training was initiated the department has trained 284 personnel. The department began providing paramedic training in 2006 and has currently trained 87 (9 currently in class) personnel as paramedics. The department is striving to achieve a response model that includes at its core personnel certified to render the most pre-hospital emergency care to the citizens and visitors of Columbus, Georgia.

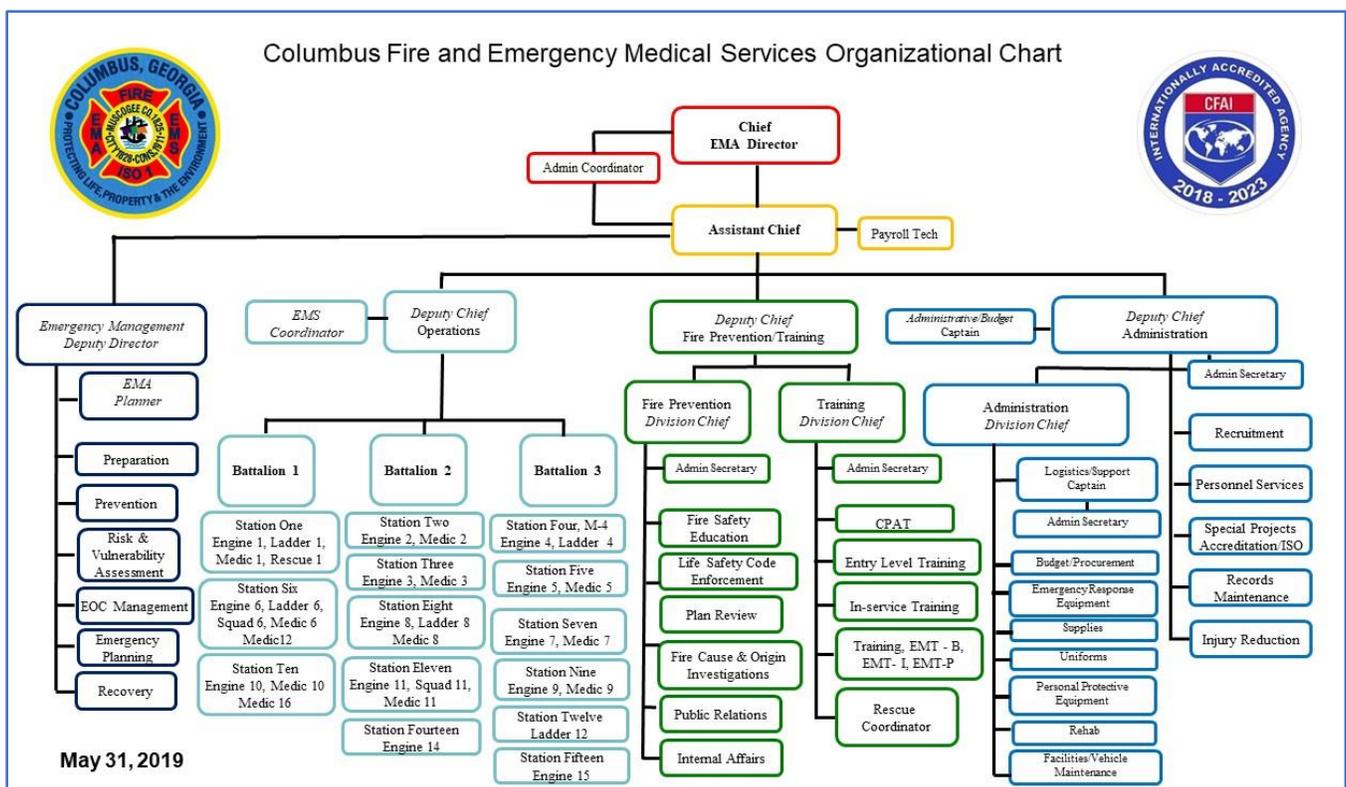
ORGANIZATION

The department falls under the umbrella of Public Safety and is governed by the Mayor, who is also the Director of Public Safety. The Mayor is the official spokesperson for the consolidated government, presides at all meetings of the City Council, and is the Director of Public Safety.

The Chief, who reports directly to the Mayor/Director of Public safety, leads the department alongside an Assistant Chief and three Deputy Chiefs who oversee daily operations. There are three Deputies: one over Training and Fire Prevention, one over Operations (fire suppression, EMS, rescue and hazardous materials), and one over Administrative Services (logistics, hiring, budget, workers comp, etc.).

Field supervision is the responsibility of nine Battalion Chiefs who report to the Deputy Chief of Operations. Daily each station has a Captain or Lieutenant that oversees station operations and call mitigation. Station Officers report directly to Battalion Chiefs. Training and Fire Prevention Division Chiefs report to the Deputy Chief of Training and Fire Prevention, and the Division Chief of Administrative Services reports to the Deputy Chief of Administrative Services. (Figure 3.1)

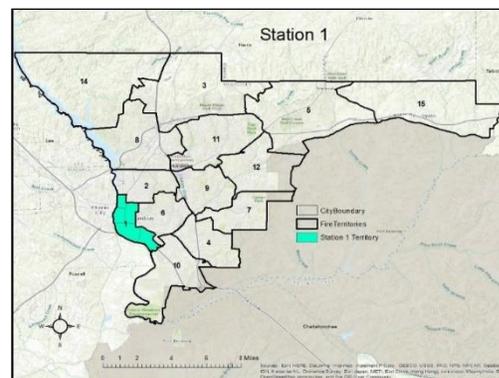
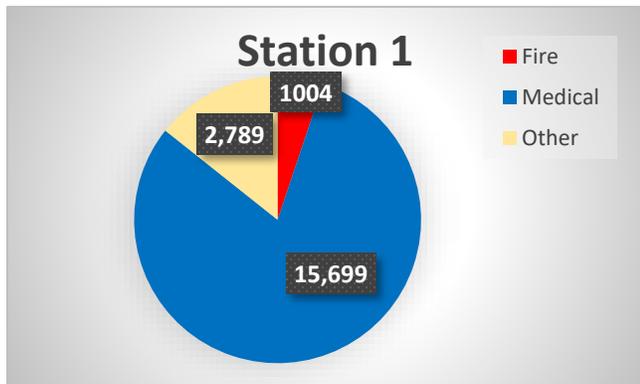
Figure 3.1: Organizational Chart



FACILITIES

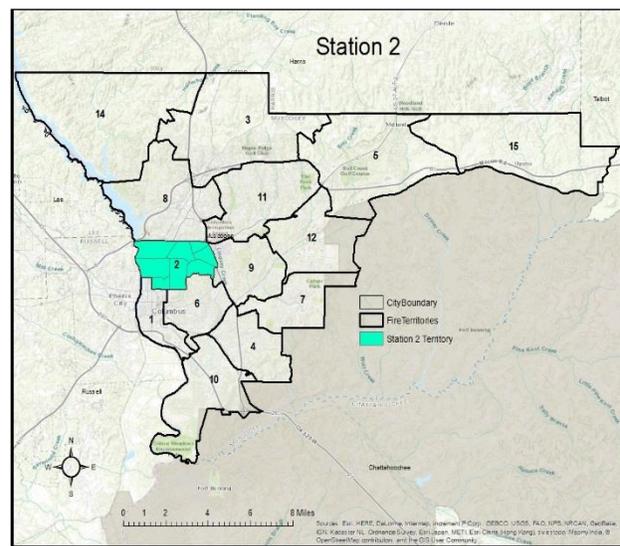
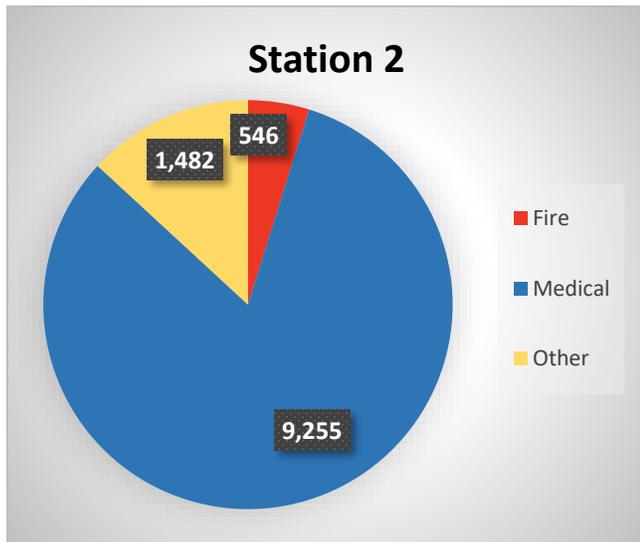
CFEMS currently operates out of 18 facilities, 14 of which house emergency response personnel and equipment. The remaining four facilities provide a variety of services to the department including training, logistics support, accredited Paramedic program, and administrative offices for CFEMS staff. CFEMS has five stations that are in need of extensive renovations; requests for funding through OLOST will be included yearly until such repairs are made.

Fire Station 1 – 205 10th St.



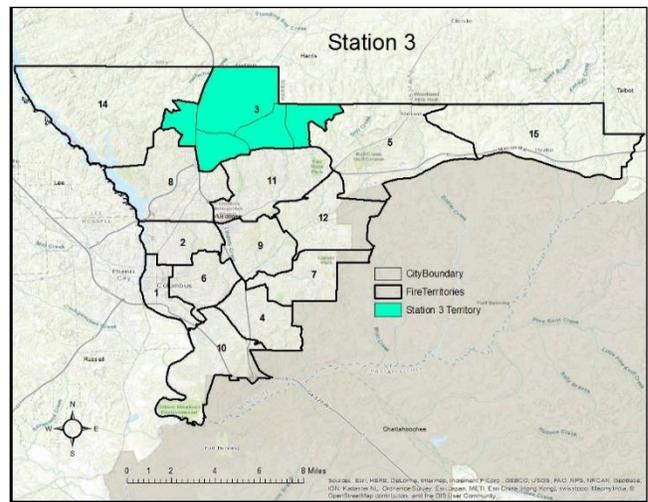
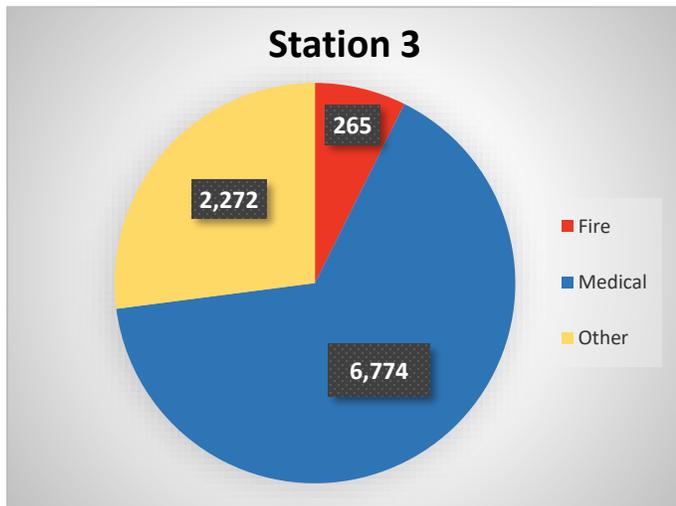
Fire Station 1 houses Engine 1, Ladder 1, Battalion 1, and Medic 1 who serve a district located the west central uptown area. Apparatus responded to 19,492 incidents for the period of 2015 through 2019. This district services mix of occupancy, which includes Columbus State University Arts College, business and financial district, and historic uptown.

Station 2 – 1047 33rd St.



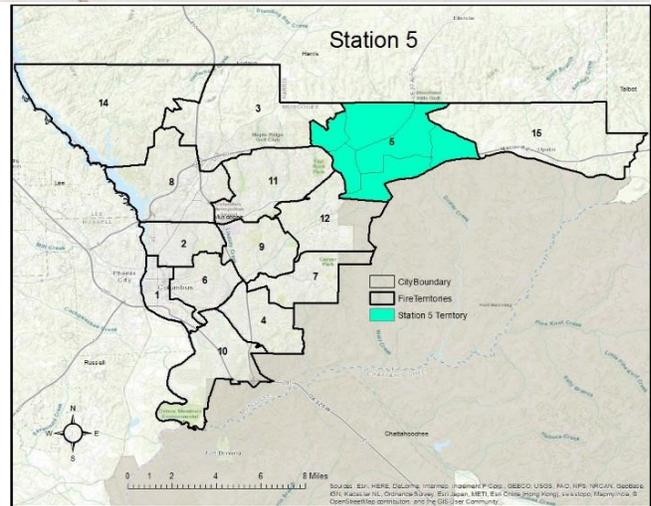
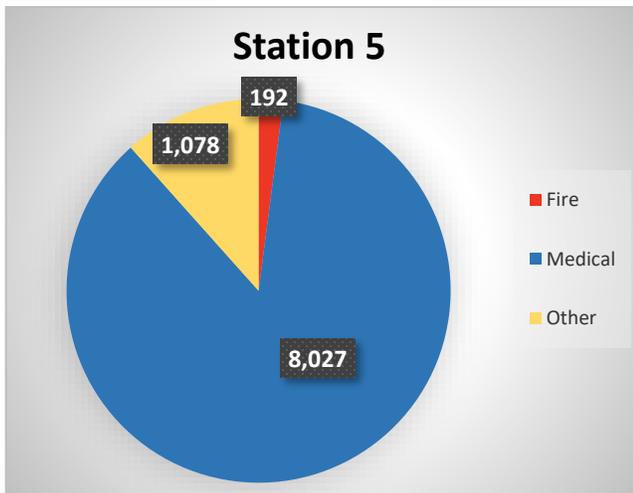
Fire Station 2 houses Engine 2, and Medic 2 (private) who serve a district located in the west central portion of the city. Apparatus responded to 11,283 incidents for the period of 2015 through 2019. This district services mix of occupancy, which includes residential, hospitals, health department, multiple nursing homes, and numerous medical offices.

Station 3 – 2000 American Way



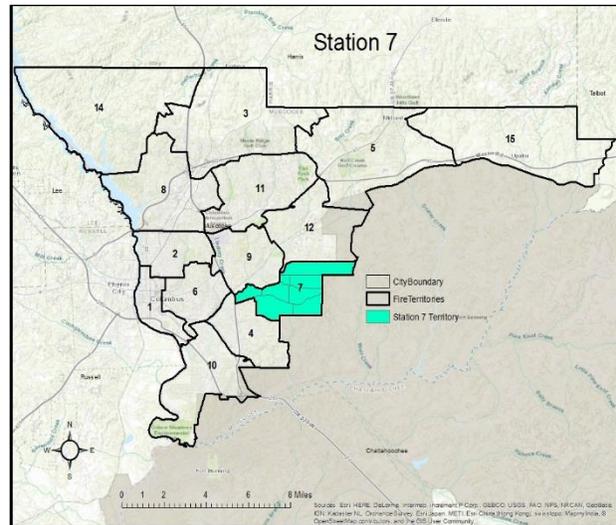
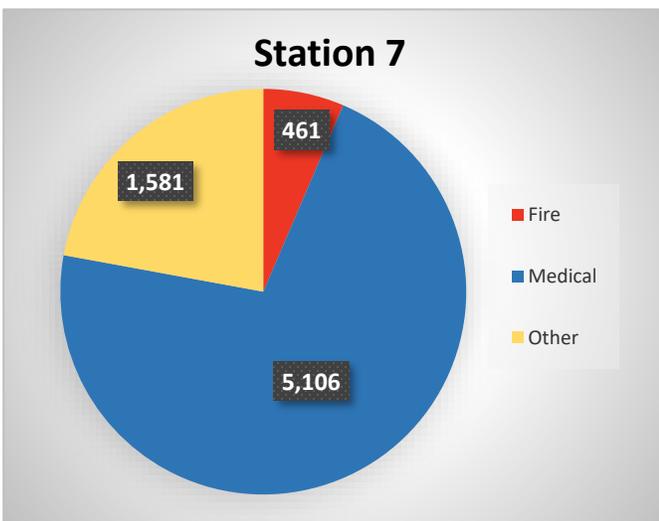
Fire Station 3 houses Engine 3, and Medic 3 who serve a district located in the north central portion of the city. Apparatus responded to 9,311 incidents for the period of 2015 through 2019. This district services mix of occupancy types, which includes residential, healthcare facilities, large assisted living facilities, and a major shopping district.

Station 5 – 6700 Lynch Rd.



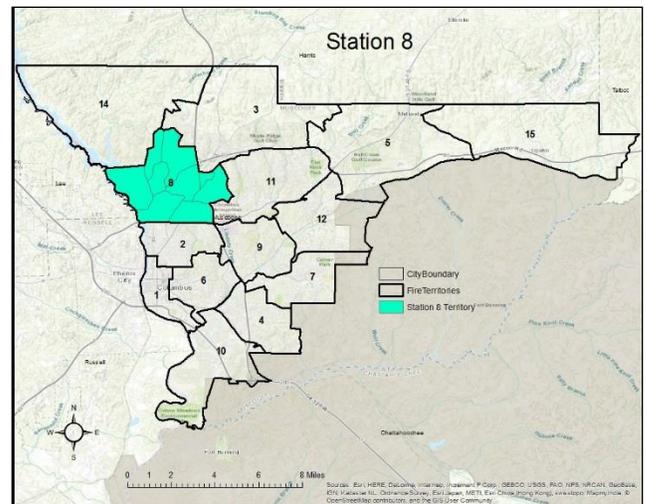
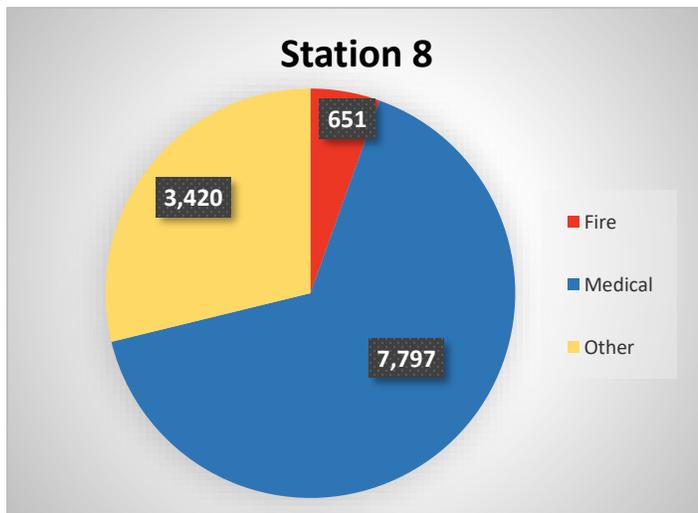
Fire Station 5 houses Engine 5, and Medic 5 who serve a district located in the northeast portion of the city. Apparatus responded to 9,297 incidents for the period of 2015 through 2019. This district services mix of occupancy types, which includes primarily residential, major arteries, and industrial.

Station 7 – 5343 Buena Vista Rd



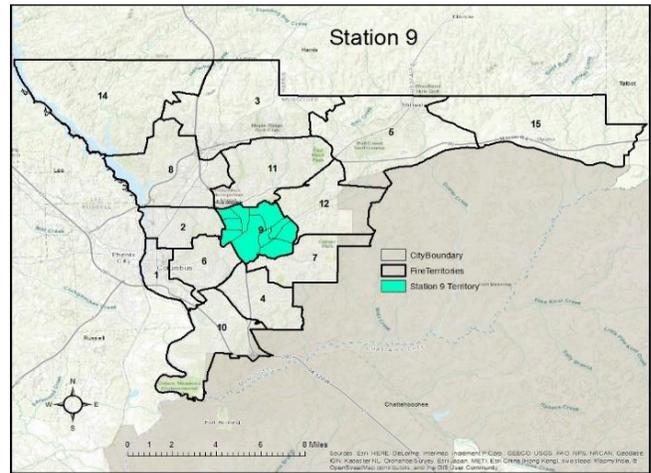
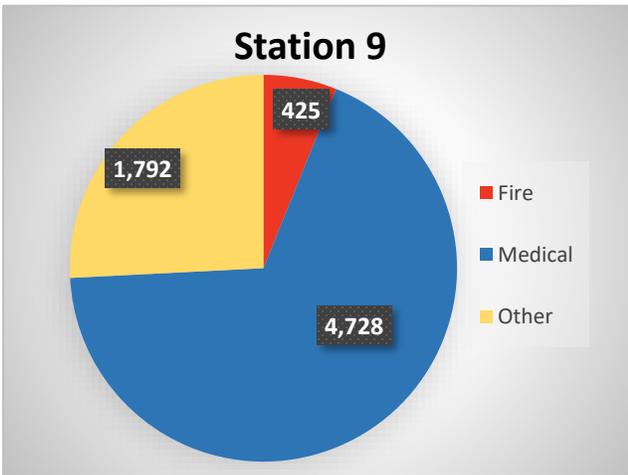
Fire Station 7 houses Engine 7, and Medic 7 (private) who serve a district located in the east central portion of the city. Apparatus responded to 7,148 incidents for the period of 2015 through 2019. This district services primarily residential with some business use occupancies.

Station 8 – 5844 Whitesville Rd.



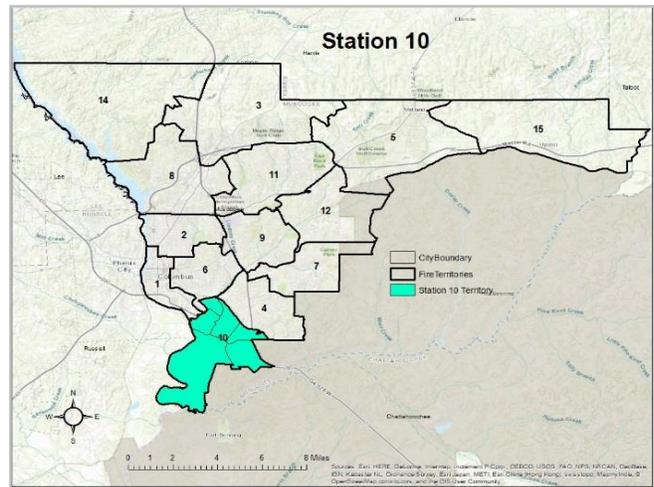
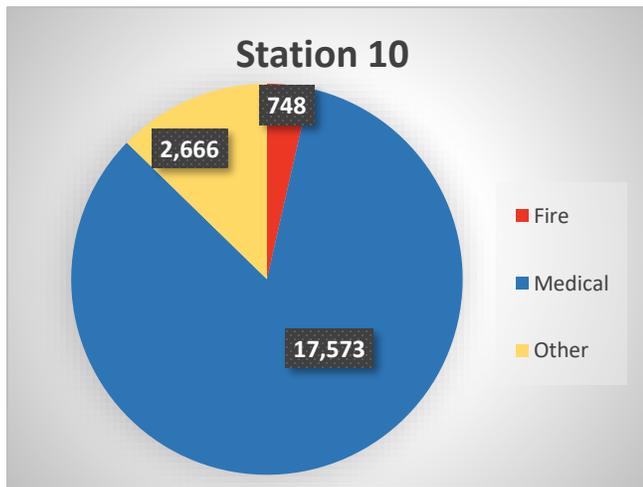
Fire Station 8 houses Engine 8, Ladder 8, Battalion 2, and Medic 8 (private) who serve a district located in the northwest portion of the city. Apparatus responded to 11,868 incidents for the period of 2015 through 2019. This district services a mix of occupancy types, which includes residential, major arteries, shopping, industrial, and educational.

Station 9 – 4191 Macon Rd



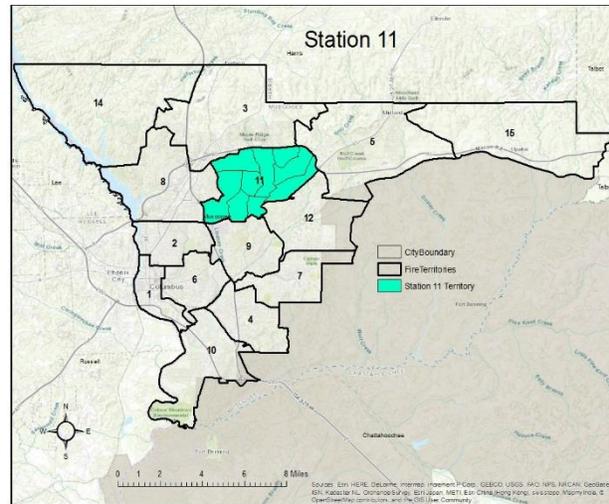
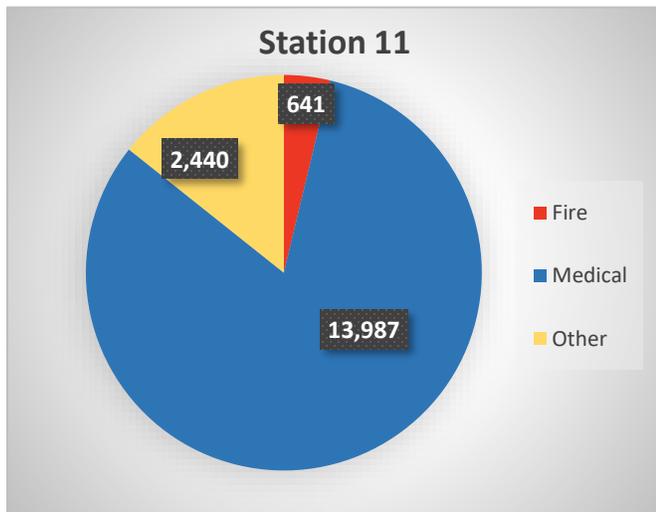
Fire Station 9 houses Engine 9, and Medic 9 (private) who serve a district located in the central portion of the city. Apparatus responded to 6,945 incidents for the period of 2015 through 2019. This district services primarily residential with some business use occupancies.

Station 10 – 1441-U Benning Dr.



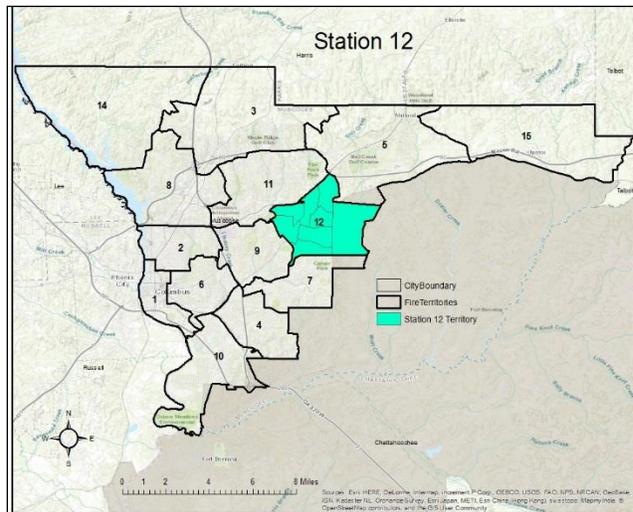
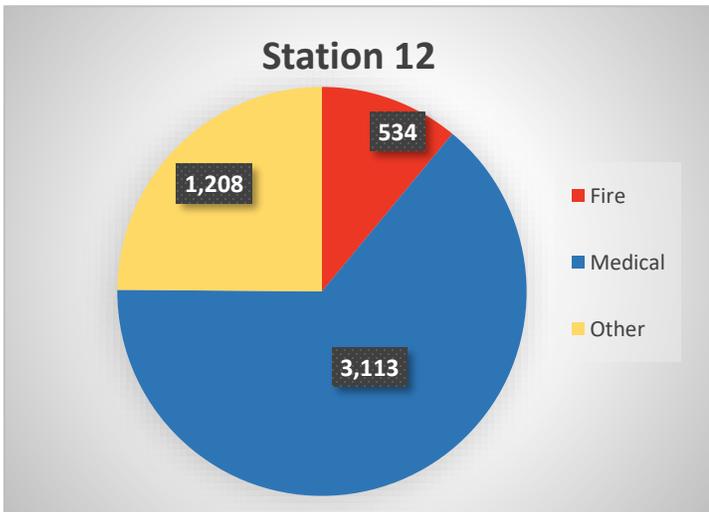
Fire Station 10 houses Engine 10, Ladder 10, Medic 10, and Medic 16 (private) who serve a district located in the southern most portion of the city. Apparatus responded to 20,987 incidents for the period of 2015 through 2019. This district services a mix of occupancy types, which includes primarily residential, large public museum, major arteries, shopping, and educational.

Station 11 – 4617 Warm Springs Rd



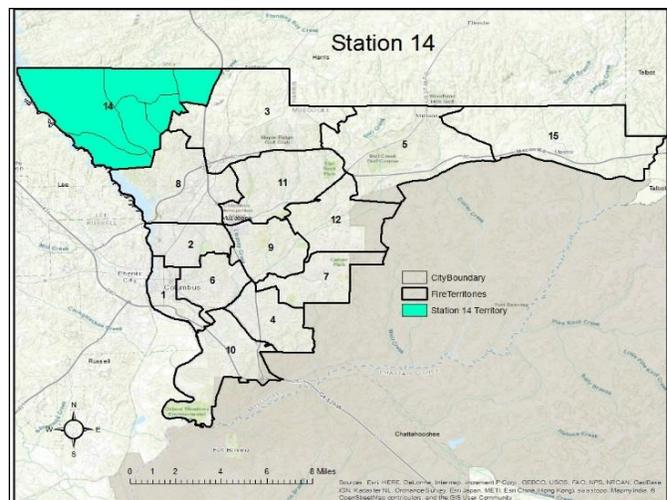
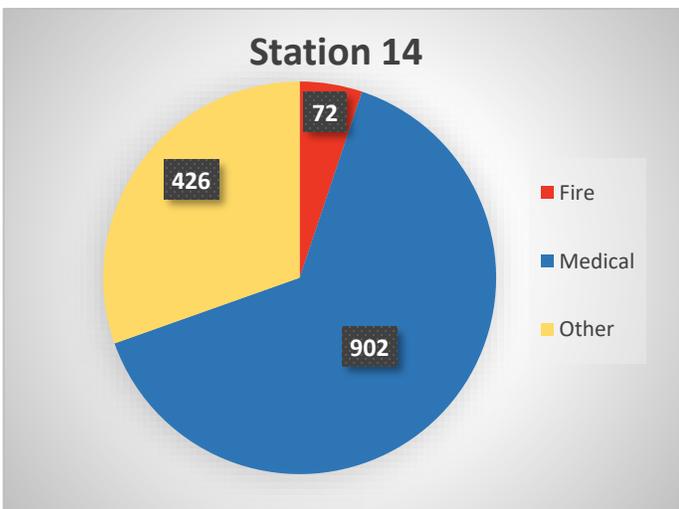
Fire Station 11 houses Engine 11, Squad 11, and Medic 11 who serve a district located in the north central portion of the city. Apparatus responded to 17,068 incidents for the period of 2015 through 2019. This district services a mix of occupancy types, which includes primarily residential, commercial airport, shopping, industrial, and educational.

Station 12 – 5225 Cargo Dr.



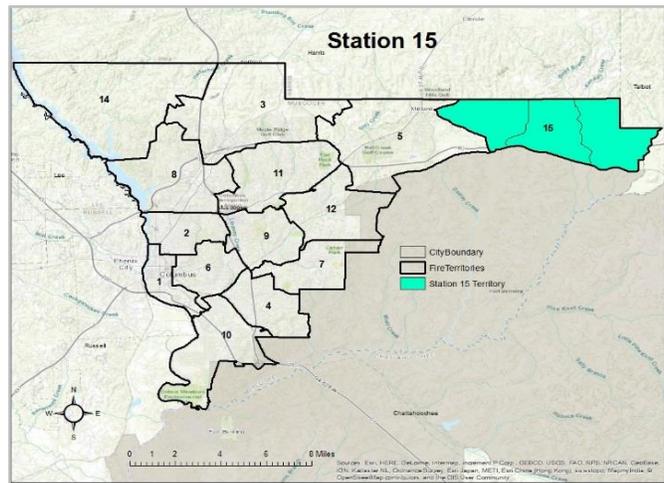
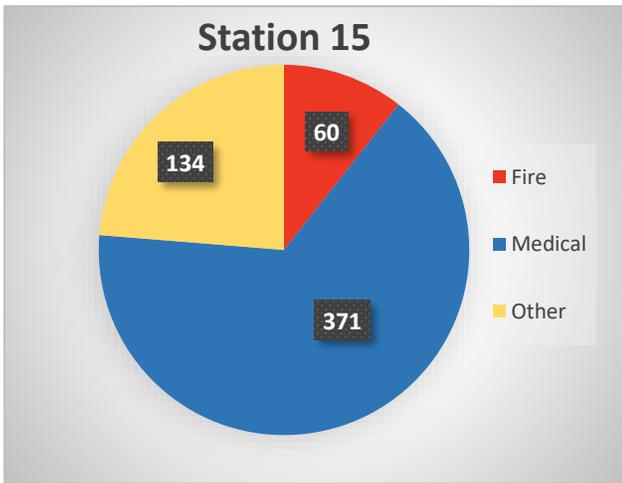
Fire Station 12 houses Ladder 12, and Battalion 3 who serve a district located in the east central portion of the city. Apparatus responded 4,855 incidents for the period of 2015 through 2019. This district services primarily residential with some industrial use occupancies.

Station 14 – 1180 Old River Rd.



Fire Station 14 houses Engine 14 who serve a district located in the northwest portion of the city. Apparatus responded to 1,400 incidents for the period of 2015 through 2019. This district services primarily residential areas.

Station 15 – 7301 McKee Rd.



Fire Station 15 houses Engine 15 who serve a district located in the eastern most portion of the city. Apparatus responded to 565 incidents for the period of 2015 through 2019. This district services primarily residential areas.

SERVICES

CFEMS is a full-time, paid, fire and emergency services department with no volunteer resources. CFEMS's current level of service is adequate to deliver the services expected by the community for the majority of incidents. For those rare incidents that tax the capacity of the department, external agency agreements have been established to provide additional resources if necessary. This level of service satisfies the expectations of Columbus' citizens and elected officials. The Department provides Fire Suppression, Emergency Medical Services, Hazardous Materials Response, Technical Rescue, Swift Water Rescue, and is a Georgia Search and Rescue Task Force (Team 4A). The County's 911 system is operated by the police department and has the responsibility of dispatching for every department within the city that requires 911 services.

CFEMS has fourteen strategically located Stations equipped with 13 engines, 6 ladder trucks, and 2 squad trucks and staffed daily. CFEMS also has a dive truck, GSAR truck, trench truck, hazardous materials unit, and Emergency Management command bus that are staffed when needed. Six of the 14 stations are equipped with a CFEMS Advanced Life Support (ALS) ambulance. The department has contracted with three private ambulance companies that combine to provide six 24 hour ambulances and one peak load (12 hr.) ambulance. Engine minimum staffing is 4 (officer, driver and 2 FFs), Ladder minimum staffing is 3 (officer, driver, FF), (exception is Ladder 12 and it is staffed with two firefighter's due to it functioning as an engine on many occasions), Squad minimum staffing is 4 (officer, driver, 2 FF's). Eight of our thirteen engines are designated ALS and are staffed with a Firemedic when staffing allows. Squad 6 is the department's hazardous materials truck and Squad 11 provides basic hazardous materials response and technical rescue response. Ambulances are staffed with one Firemedic and one EMT-Intermediate or one Advanced EMT. The Deputy Chief of Operations monitors staffing to ensure Battalion Chiefs are following the departments staffing guideline.

DEPARTMENT DIVISIONS

Fire Prevention

- Fire Prevention is responsible for the enforcement of life safety codes, issuance of permits, and plan review for suppression/detection systems, flow tests, new hydrant placement, and conducts life safety inspections. They are involved with numerous fire and life safety initiatives that improve the safety of our citizens. These programs include the following: Free Home Safety

Survey, Residential Carbon Monoxide Checks, School Fire Safety Education, Juvenile Fire Setter Program, Free Smoke Alarm Installation, and Community Improvement Projects.

- The division maintains a Georgia certified law enforcement agency. This division also investigates fires for cause and origin, is responsible for prosecution of fire related criminal activity and responds to customer inquiries and complaints. The division is aided by an Accelerant Detection K-9 team.

Operations

- The Operations Division is responsible for delivering fire suppression, emergency medical services, and specialized rescue services to include hazardous materials emergency response, confined space rescue, high angle, trench rescue, and water rescue/recovery to the community. The division has a total staff of 348 sworn personnel and 1 clerical position. The City is divided into 3 battalions with a minimum of 94 personnel on duty per shift. Personnel work a 24/48-hour work schedule. The Division responds multiple units to the majority of approximately 57,000 emergency responses annually. The division operates from fourteen stations which, house a total of thirteen engines, six quints, three command vehicles, two squad companies, one Georgia Search and Rescue (GSAR) heavy rescue unit, and 12.5 advanced life support ambulances (five 24/7 and 1 12 hour units operated by private ambulance services).
- The division has Thermal Imaging Cameras (TIC) on every Engine Company, Ladder Company and Squad throughout the department. Each apparatus is equipped with an Automatic External Defibrillator and a full complement of advanced life support and first responder equipment.

Logistics/Support

- The Logistics/Support Division is responsible for the budget process to include research/development, procurement, bid specifications, and ensuring the efficient repair/replacement of all emergency equipment assigned to the department. The division works closely with other city departments to ensure the efficient repair of the department's facilities and vehicles. The division supplies fourteen stations with emergency and non-emergency equipment and is responsible for all records pertaining to the repair/replacement of all personal protective equipment to include the required testing, repair, and replacement of self-contained

breathing apparatus. The division provides rehabilitation services at emergency incidents and is responsible for issuing uniforms and personal protective equipment to all sworn personnel.

Training

- The Training Division conducts and coordinates all department training activities including but not limited to recruit training, fire suppression, emergency medical, rescue, officer development, national incident management system (NIMS) and other training programs as necessary to meet established state and federal mandates each year. The division is responsible for ensuring that all department members meet the training requirements as set forth by the National Fire Protection Association (NFPA), Insurance Services Office (ISO), Georgia Firefighter Standards and Training, Columbus Consolidated Government, Georgia Department of Human Resources, and the internal requirements of the Department of Fire and Emergency Medical Services.

Emergency Management

- The Emergency Management Division is charged with the responsibility of producing, distributing and maintaining all comprehensive emergency plans for the City of Columbus, Georgia. Part of this responsibility is to provide training and exercises that clearly demonstrate each department's and agency's responsibilities within the City and to identify staffing, training, and resource gaps that may limit the effectiveness of mitigation, response, and recovery activities following a major disaster or emergency within this jurisdiction. The Division further is charged with coordinating the response of not only local resources but also state, federal, volunteer, and ancillary resources to emergencies or disasters in the categories of natural, manmade, or technological hazards within the City.
- The Division maintains the City's Emergency Operations Center, all communications equipment and resources that would be utilized to efficiently manage a large-scale emergency or disaster. Implement the command and control functions for political leadership and City department directors of the public safety departments and general government. To support this function the Division operates and maintains the City's Mobile Command Vehicle that is equipped to support field operations at the scene of emergencies or disasters.

- The Division maintains and delivers training programs and public information to the general population within this jurisdiction with regards to emergency preparedness and citizen's response to better insure the safety of the citizens of this City.
- Emergency management involves preparing for disasters before they occur through citizen preparedness, training, disaster response (e.g. emergency evacuation, quarantine, mass decontamination, etc.), as well as supporting, and rebuilding after natural or human-made disasters have occurred. In general, emergency management is the continuous process by which all individuals, groups, and communities manage hazards in an effort to avoid or lessen the impact of disasters resulting from the hazards. Actions taken depend in part on analysis of risk to determine the priorities for applying resources to those hazards that will most likely affect a given region or population.
- The local Emergency Management Division insures that the City of Columbus is eligible for disaster re-imburement and for federal grant funding by meeting all requirements established by federal and state governments. The City remains eligible for federal funding by insuring compliance with the requirements of the National Incident Management System.

COMMUNITY RISK REDUCTION/OUTREACH

CFEMS is dedicated to reducing risk within the community. The Fire Prevention Division consist of Inspections, Fire Investigations and Public Education. The departments Public Education program educates on average 15,266 children (pre-K through 6th grade) and 824 (65+) adults in the areas of fire and injury prevention. The Inspections personnel ensure that businesses within Columbus follow local and state laws to provide a safe environment for employees and citizens. Through fire investigations, data is gathered as to the origin and cause of fire events; that information can later be incorporated into the public education program. The department offers free smoke detectors and installation for citizens. Through a collaboration with the Red Cross, the department has conducted community smoke detector initiatives that target a chosen geographical section of the city for door-to-door contact with citizens for smoke detector installation and fire safety education. Field personnel are the department's main providers of public education; through school visits and station visits, our personnel interact with their community frequently. The department distributes hundreds of educational materials annually; more

emphasis has been placed on Spanish literature to ensure all citizens within the community are educated in fire safety.

FIRE PREVENTION DIVISION

The Fire Marshal's office oversees Fire Inspectors, Fire Investigators, Public Education, plan reviews, and issues permits. The Fire Marshal is also the department's public information officer and conducts all internal administration investigations.

FIRE INVESTIGATIONS

The Investigative Services section of the Fire Prevention Division has three full time investigators and maintains at least three reserve investigators who serve in field operation positions when not needed for fire investigations. The three investigators work 24 hours on a designated shift. Reserve investigators fill in during vacations, sick leave, etc. The Fire Marshal serves as the department's public information officer (PIO).

CFEMS has adopted NFPA 921 "A Guide for Fire and Explosion Investigation" and NFPA 1033 "Standard for Professional Qualifications for Fire Investigator". The principles and practices of NFPA 921 and NFPA 1033 are part of the instruction curriculum of the Georgia Public Safety Training Center's Arson Investigation Program. CFEMS personnel must complete this training prior to being placed in the position of Fire Investigator. Each Fire Investigator is required to utilize these best practices as part of a systematic approach to their fire scene investigations.

The department is authorized through City ordinance to investigate the origin, cause, and circumstances of any fire in the jurisdiction. The Georgia Peace Officer Standards and Training Council (POST) has recognized the City of Columbus, Department of Fire and Emergency Medical Services as a law enforcement agency as defined in O.C.G.A. 35-8-2et. Seq.

PUBLIC SAFETY EDUCATION

The Fire Prevention Division takes a pro-active approach to public fire safety education. The department offers a variety of safety oriented programs to the public such as free smoke detectors installations, free home safety surveys, classes on fire extinguisher usage, presentations and consultations with corporate officials, speeches to civic groups and takes full advantage of local media

and social media platforms in an effort to promote fire safety. The Fire Prevention Division utilizes the findings of the Community Risk Assessment to determine areas of concentration for the Public Education Program.

The majority of public safety education programs conducted are within the Muscogee County School District, local private schools and child daycare centers. Initiated in 1992, it is an in-depth program that is provided for all Muscogee County schools. The Fire Prevention Division strives to instill in children positive fire safety behaviors through these school-based programs. Children in the system learn positive safety values at an elementary level and carry it with them throughout their life. The school programs are focused on children in pre-K through the 6th grade. The Division also focuses on the elderly population age 65+ through Fire Safety education provided to large group centers and neighborhood civic groups.

YOUTH FIRE SETTER INTERVENTION

The department conducts juvenile fire setter intervention sessions with identified participants through one of the inspectors who is formally trained to conduct the session. The sessions are conducted in a structured and private environment with the legal guardian's permission. A log of all participants is kept by the inspector who coordinates with the fire investigators in providing this service.

PUBLIC ACCESS DEFIBRILLATION

Effective bystander CPR, provided immediately after cardiac arrest, can double a victim's chance of survival. In 2004, CFEMS began the Public Access Defibrillation (PAD) program, which places Automatic External Defibrillators (AED) available in public and/or private places where large numbers of people gather or where people who are at high risk for heart attacks live. An AED is a computerized medical device that can check a person's heart rhythm, recognize the rhythm, and advise when shock is necessary. The AED uses voice prompts, lights and text messages to communicate with the user. Providing the public access to an AED should increase the likelihood of a victim surviving cardiac arrest. (Figure 3.2 AED Locations)

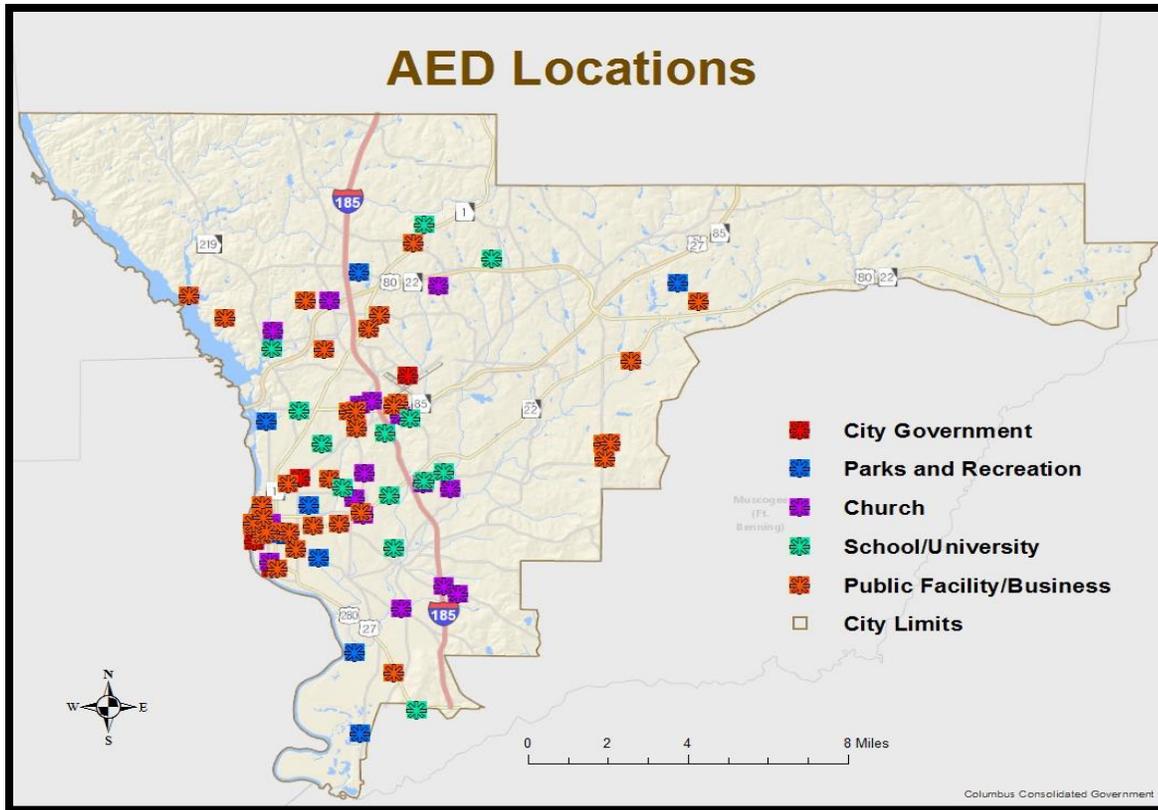


Figure 3.2 AED Locations

STAFF

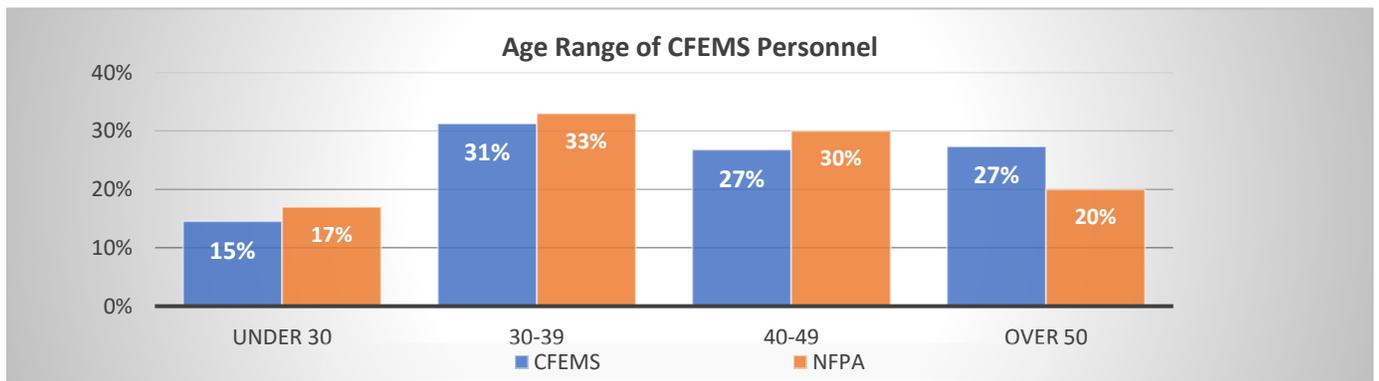
CFEMS is authorized to fill 383 positions: 375 sworn and 8 civilian. Fire suppression personnel are assigned to one of three shifts: A, B or C. Each shift works 24 hours on-duty and 48 hours off-duty. Minimum on-duty staffing for each shift is 94 people consisting of three battalion chiefs, eight captains, 13 lieutenants, 21 sergeants (drivers), and 49 firefighters.

Sworn personnel are trained to respond to fire-related incidents, medical emergencies, hazardous materials incidents (HAZMAT), technical rescues, mass casualty, and other emergencies. All new recruits are being hired and trained to Firefighter II, Hazmat Operations and Advanced EMT (AEMT). CFEMS provides Advanced Life Support (ALS) by requiring at least one Firemedic on all ambulances and many of the engines. CFEMS has an accredited paramedic program that trains an average of 15 Paramedics annually. Contracted ambulance providers must be equipped as advanced life support, with a minimum of one paramedic per ambulance.

ATTRITION AND RECRUITING

According to department records, between 2014 and 2018, an average the department has had on average 15 positions to fill each year. The department attends multiple job fairs each year to assist with the recruiting process. The most reliable way of recruiting has been through department personnel referrals. The charts below show the department as compared to NFPA demographics for similar sized cities. (Figure 3.3 Age Range)

Figure 3.3: Age Range



Number of Candidates By Ethnicity Male							
January 01, 2019 - December 31, 2019							
Ethnicity	Applied	Eligible	Referred	Interviewed	Offered	Hired	% Interviewed to Hire
Caucasian	113	84	84	26	32	32	81.25%
African American	98	52	52	10	9	9	90.00%
Hispanic	12	8	8	1	1	1	100.00%
Asian/Pacific Islander	3	0	0	0	0	0	
Other	2	2	2	1	1	1	100.00%
American Indian/Alaska	1	1	1	0	0	0	
Not Answered	0	0	0	0	0	0	

Number of Candidates By Ethnicity Female							
January 01, 2019 - December 31, 2019							
Ethnicity	Applied	Eligible	Referred	Interviewed	Offered	Hired	% Interviewed to Hire
African American	202	15	14	0	0	0	
Caucasian	126	11	11	2	2	1	50.00%
Other	22	5	5	1	1	1	100.00%
Hispanic	15	1	1	0	0	0	
American Indian/Alaska	2	0	0	0	0	0	
Asian/Pacific Islander	2	0	0	0	0	0	
Not Answered	1	0	0	0	0	0	

RESOURCES

ENGINE

Thirteen of our fourteen stations have one engine with the exception being Station 12 that is equipped with one ladder truck. All engines are NFPA designated 'triple combination' engines, equipped with a 1500 GPM fire pump, hose complement, and water tank. The minimum staffing on an engine is four personnel (see SOG 02-200 Response Guideline): one officer, one driver, and two firefighters. The role of the engine company during fire suppression operations is to pump water onto the fire through a variety of fire hoses and associated appliances to lower the temperature of the fuel below its ignition temperature thereby extinguishing the fire. The engine crew also operates hose lines, conducts search and rescue, and performs any other duties conducive to quick and effective fire containment that contributes to saving lives and protecting property. This unit and crew provides a variety of emergency medical services capabilities.

LADDER

There are six ladder truck companies strategically placed throughout the city. The length of the aerial ladders varies in length but range from 75-105 feet. All frontline ladder trucks have the capacity to pump water with a 1500 GPM pump. The minimum staffing on a ladder truck is three personnel (one officer, one driver, and one firefighter) (see SOG 02-200 Response Guideline); exception is Ladder 12 staffed with four personnel (one officer, one driver, and two firefighters) (see SOG 02-200 Response Guideline). Ladder trucks provide elevated work platforms and master streams, when the situation dictates, and otherwise they aid in fire suppression efforts conducted by engine companies including entry and ventilation. All ladder trucks carry a complete complement of first-line hydraulic extrication equipment, spreaders, cutters, forced entry tools, etc., and are routinely dispatched to rescue calls. This unit and crew provides a variety of emergency medical services capabilities.

SQUAD

CFEMS operates two Squad trucks; one at Station 6 and one at Station 11. Minimum staffing is four; one officer, one driver, and two firefighters (see SOG 02-200 Response Guideline). Squad 6 acts as the department's hazardous materials truck as well as providing manpower, lighting and air tank refill at fire

and rescue scenes. Squad 11 personnel are trained at a minimum level of hazardous materials operations as well as technical rescue technicians.

BATTALION CHIEF

Minimum staffing is one battalion chief/acting battalion chief assigned to each of the department's three battalions over three squads for a total of nine battalion chiefs. The vehicle is either a Ford F150 truck or Ford Explorer.

COMMAND

CFEMS operates one command unit through the Emergency Management Division. It is dispatched to major incidents that have the potential for an extended duration. The mobile command vehicle is an RV-style bus with a variety of resources on-board. It has air conditioning and heat, communication tools, restroom, and space for the on-scene command staff to set up a command post. The unit is self-sustaining with a diesel-powered generator for electrical power.

EMS

CFEMS currently staffs six 24-hour transport ambulances. They are staffed with one Firemedic and one EMT-I or AEMT. All apparatus are at least medical first responder units (MFRU) and staffed with EMT-I's or AEMT's. The city has contracted with three private ambulance services to supplement ambulance transport services and respond to 911 calls from CFEMS stations. Community Ambulance and Care Ambulance provide two 24-hour trucks, while EMS Care provides two 24-hour trucks and one 12-hour peak-load truck. The contract was renewed in 2017 and with the addition of two more 24-hour trucks and the peak-load truck; workload has decreased which in turn has decreased Firemedic turnover.

HAZARDOUS MATERIALS

CFEMS has 81 members assigned to the Hazardous Material Teams (HMT's). The teams are located at Station 6 and Station 11 on three different shifts. The department's Special Operations Captain directs the HMT's in training, exercises, and leadership. The Special Operations Captain also meets with the

hazmat team officers on a biannual basis, or as needed, to discuss issues involving training, personnel, policies, procedures, and equipment procurement.

HAZMAT EQUIPMENT

<u>Station 6</u>	<u>Station 11</u>
Engine 6: 2016 E-One Typhoon pumper	Squad 11: 2016 E-One Cyclone II 20' non-walk in box with special storage compartments allowing operation as a squad unit.
Ladder 6: 2016 E-One Cyclone II 100' Quint	
Squad 6: 2017 E-One Cyclone II 22' non-walk in	
Decon 6: 2004 E-One Cyclone 20' non-walk in w/ command unit	

TECHNICAL RESCUE

CFEMS has 70 members assigned to the Technical Rescue Team (TRT). The members are located at station 1 and station 11 on three different shifts. The department’s Special Operations Captain directs the TRT in training, exercises, and leadership. The Special Operations Captain also meets with team officers on a biannual basis, or as needed, to discuss issues involving training, personnel, policies, procedures, and equipment procurement.

TRT Equipment

<u>Station 1</u>	<u>Station 11</u>
Rescue 1: 1997 NaviStar international 18ft. non-walk-in box	Squad 11: 2016 E-One Cyclone II 20' non-walk in box with special storage compartments allowing operation as a squad unit.
Rescue 2: 2015 Ford F-250 4x4	
Rescue 4: 1995 International w/ 48' goose neck tractor	<u>Station 9</u>
Trench Rescue: Homesteader 20' x 8' tow-behind trailer	Rescue 3: GSAR TF 4A 2009 Spartan Custom crew cab tractor pulling a General Safety utility trailer approximately 53' long.
Boat 1: 18' Alum-craft w/ 60 HP jet drive	
Boat 2: Inflatable Zodiac boat w/ a E-tec jet pump engine	
Jet Ski 1: Two 2008 Kawasaki JT-1500 jet skis.	

SECTION IV: ALL-HAZARD RISK ASSESSMENT

Risk Assessment is a core component of Community Risk Reduction within the Columbus Department of Fire and Emergency Medical Services. With a thorough evaluation of the risks, specific to Muscogee County, the department can plan mitigating strategies for potential threats to the public's safety.

CFEMS identifies risk based on the nature and magnitude of hazards and risks within the geographic boundaries of Muscogee County, Georgia. The Department utilizes a six-step methodology to qualify the risk level from each hazard. The model is used to rate the risk based on the estimated frequency and consequence/impact of an event. The Department uses this information to determine proper distribution and concentration of its emergency response resources for a given hazard or risk. In simple terms **Increased Impact=Increased Concentration.** (Figure 4.1: Risk Categorization)

METHODOLOGY:

The Agencies' risk assessment process considers six vital components for a given risk to include:

1. Fire Flow-the amount of water needed to control and extinguish a fire based on the characteristics of a given structure.
2. Probability-the likelihood that a specific event will occur within a specific time. An event that occurs in a century is not likely whereas, an event that happens daily is very likely.
3. Consequence/Impact-this is divided into two segments; life safety and community impact
4. Occupancy Vulnerability Risk- this is systematic analysis of a structure as it relates to life safety risk from fire events.
5. Service Areas-geographic boundaries utilized to analyze the community's risk in each segmented area.
6. Community Profile-an analysis of the community based on demographics, cultural, historical, and social vulnerability.

PROBABLITY/CONSEQUENCE MATRIX

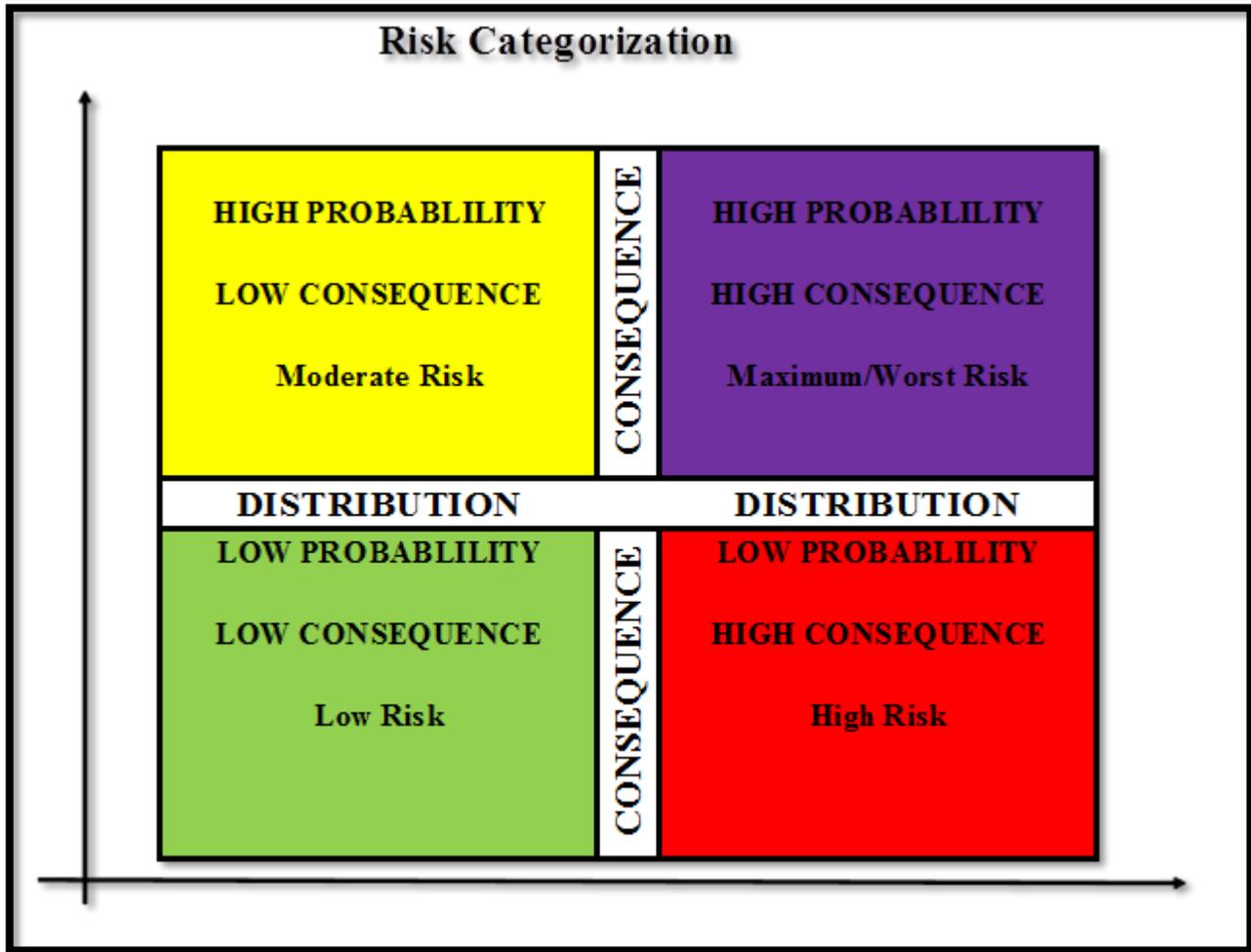


Figure 4.1: Risk Categorization

Risk Identification: The Columbus Department of Fire and Emergency Medical Services has identified several hazards to the community to include, Natural (Floods, Tornados, Lightning, Severe Thunderstorm/High Wind Events, Hail, Hurricanes/Tropical Storms), Material (Hazardous Materials to include Fixed Facilities and Transportation), Human (intentional or accidental acts), Mechanical (failure of equipment or material, failure of safety features of equipment or materials)

Risk Assessment:

The agency assesses each risk/hazard based on probability of occurrence and community impact. While probability is described as the likelihood that a given risk/hazard will occur, community impact is best described as the magnitude or reasonably expected loss that will be experienced.

Risk Categorization

The agency uses a 2-axis methodology for risk/hazard categorization. The agency categorizes the threat each hazard poses within each program area on a scaled grading system (Low, Moderate, High and Very High).

Risk Classification: The agency classifies these hazards per several programs, which include, Emergency Management, Fire Suppression, Emergency Medical Services (EMS), Technical Rescue, Hazardous Materials, and Domestic Preparedness.

SEVERE WEATHER

SEVERE THUNDERSTORMS/HIGH WIND EVENTS

Thunderstorms can develop singly, in clusters, or in lines. A single thunderstorm can affect a certain location for an extended time and cause severe weather; or several thunderstorms can affect a location over a few hours. Thunderstorm winds generally move in a straight line and not in a rotating air column (like tornados). The winds are normally short-lived and can reach gusts up to 50 miles per hour or more.

THUNDERSTORMS EVENT PROFILE, FREQUENCY OF OCCURRENCE, AND PROBABILITY

Thunderstorms are a common natural hazard. The most damage is caused by the strong winds accompanying storms and, flash flooding from heavy rain. Columbus-Muscogee County experiences a large amount of reported thunderstorm and high wind events each year, making this hazard the most common of all in Columbus-Muscogee County.

ESTIMATE OF POTENTIAL LOSSES TO THUNDERSTORMS

Common thunderstorm damages to private property are downed trees, damaged roofs, awnings ripped, and other damage from fallen tree limbs. In Columbus-Muscogee County, there are accounts of

the side of a mobile home being blown off, cars blown off Interstate I-185, and a large billboard on Interstate I-185 at River Road being blown down. Fallen trees pose a threat of injury or loss of life among residents. Since urban trees play a vital role for the climate and quality of life in a community, damage done to the trees, as well as the complete losses of urban trees, should be prevented.

Some concerns for Columbus-Muscogee County are power outages, downed telephone and electrical wires, tree limbs on school buses, loss of urban trees, traffic lights blown over, and street traffic blocked due to downed trees. With a frequency of about three thunderstorms per year, and with estimated damages to public property and facilities of around \$2,000 per occurrence, this is a hazard that affects Columbus-Muscogee County physically and financially. In addition to property damage, costs for clean-up of storm damage and debris would need to be included into the financial hazard that affects Columbus-Muscogee County. According to CCG's Public Services Department, it is estimated that the CCG spends approximately \$7,000 per year on the clean-up after weather events.

GENERAL OVERALL HRV SUMMARY OF THUNDERSTORMS

Thunderstorms are the most frequent natural hazard in Columbus-Muscogee County, with a high probability, and a hazard connected with returning losses of or damages to property and infrastructure. Specific attention must be placed on ensuring that structures are built to current standards, to protect the property and life of the owners.

TORNADOS

A tornado is a violent, destructive, whirling wind accompanied by a funnel-shaped cloud. It occurs most often with thunderstorms during the spring and summer in the mid-latitudes of the Northern Hemisphere, when the weather is warm and humid. This wind is normally accompanied by a small-diameter, funnel-shaped cloud column of violently rotating air, which developed within a convective cloud, and is in contact with the ground. This column progresses in a narrow path over land. Tornadoes can generate the strongest winds known on earth, with wind speeds exceeding 250 miles per hour, and can cause tremendous destruction. Tornadoes normally move from southwest to northeast, and their paths of destruction can be one mile wide and up to fifty miles long. The tornado season in Georgia usually lasts from March until August, but tornadoes can strike at any time of the year if the right atmospheric conditions exist. Tornadoes can also develop as spin-offs from hurricanes. To categorize

the intensity of the winds and the levels of damage, the Enhanced Fujita-Scale (EF-scale) is used internationally.

TORNADO EVENT PROFILE, FREQUENCY OF OCCURRENCE, AND PROBABILITY

While the Dixie Alley, the region of maximum tornado frequency, is a nickname sometimes given to areas of the southern United States that are particularly vulnerable to strong or violent tornadoes. This is distinct from the better-known Tornado Alley and has a high frequency of strong, long-track tornadoes that move at higher speeds (50+ miles per hour). Dixie Alley includes much of the area of the lower Mississippi Valley. It stretches from eastern Texas and Arkansas across Louisiana, Mississippi, Tennessee, Alabama, Georgia, to upstate South Carolina and western North Carolina; the area reaches as far north as southeast Missouri and southwest Kentucky. The State of Georgia has experienced at least 1,500 tornados since 1950, with at 454 of them being classified Category EF2-EF5, strong to violent. Columbus-Muscogee County was hit by at least 14 Tornados and one funnel cloud since the 1950s. (Figure 4.2: Tornados)

Columbus-Muscogee County Tornado Events 1953-2019

Figure 4.2: Tornados

DATE	TORNADO F SCALE	DEATHS	INJURIES	DAMAGE PROPERTY
4/18/1953	F3	2	300	\$25,000,000
2/22/1961	F1			\$25,000
3/31/1961	F3			\$25,000
5/16/1966	F1		11	\$2,500,000
5/1/1978	EF2		3	\$2,500,000
11/20/1983	EF1		2	\$250,000
3/29/1991	EF0			\$2,500
5/5/1991	EF1			\$250,000
11/22/1992	EF1			\$250,000
3/13/1997	EF1		1	\$775,000
11/15/2006	EF0			\$500
3/1/2007	EF2		1	\$28,000,000
4/19/2009	EF1			\$3,000,000
4/3/2017	EF1			\$100,000
3/3/2019	EF3			\$500,000

Source: National Climatic Data Center

In Columbus-Muscogee County, there are a total of 84,182 structures, of which 71,450 are classified residential, 11,393 commercial, 147 industrial, 52 agricultural, and 647 religious/non-profit. The remaining 493 structures are essential facilities and include 326 government, 113 education, and 54 utility structures.

The 83,689 non-critical structures potentially are all exposed to the threat of a tornado, just like the identified critical facilities. The total population of Columbus-Muscogee County, 189,885 residents, is endangered by a tornado. Older, non-critical private homes are especially at risk of being damaged by high winds or tornados. In Columbus-Muscogee County, 28.9% of all housing units were built before 1960. These houses, older than 45 years, may be more vulnerable to natural hazards than newer houses.

ESTIMATE OF POTENTIAL LOSSES TO TORNADOS

When an F3 tornado hit Columbus-Muscogee County in 1953, property damage was estimated to be about \$25 million. This has been the greatest loss to date for Columbus-Muscogee County to a natural hazard. In 2017 this size tornado would equal almost 230 million dollars in estimated damages.

It can be assumed that structures with the greatest replacement value will sustain the most monetary damage. Facilities with extremely high estimated replacement values, and therefore high vulnerabilities (i.e. over \$20 million) include the Columbus Consolidated Government building (CCG) (estimated replacement value \$49 million), the hospitals (estimated replacement values between \$40 and \$220 million), the Muscogee County Jail (\$20.3 million dollars estimated replacement value), Muscogee County Prison (\$200 million dollars estimated replacement value), Columbus Water and Wastewater Facilities (estimated replacement values between \$50 and \$302 million), Columbus Metropolitan Airport (estimated replacement value \$25 million), High Schools (estimated replacement values between \$20 and \$25 million), Columbus Public Library (estimated replacement value \$21 million), Commerce Center and Technology (estimated replacement value \$24 million), six (6) high schools (estimated replacement values between \$20 and \$25 million). The 83,689 non-critical structures in Columbus-Muscogee County have an estimated replacement value of \$5.3 billion.

GENERAL OVERALL HRV SUMMARY OF TORNADOS

The F3 tornado in 1953 caused the greatest loss of property for the CCG to one natural hazard to date, per the National Climatic Data Center; damage was reported to be \$25 million. A tornado occurring on March 1, 2007 is reported to have caused \$28 million in damage to private and public property and a tornado occurring in April 2009 caused \$3 million in property damage. Since tornados can be expected in all parts of the county at any time, the CCG must prepare for this hazard. The best chance to survive a tornado is to plan, and to respond quickly to a tornado watch or warning. Any such measure taken may aid in the prevention of loss of life or property.

FLOODS

Floods are defined as the rising of bodies of water, such as rivers and streams, overflowing their natural or artificial banks and submerging normally dry land. These high-water stages are often related with severe tropical storms or torrential rains from hurricanes. Floods can be slow, as the result of extended rain or a storm event, or fast rising, as the result of a flash flood. Flash floods and dam failure can be expected when an area is affected by large amounts of rainfall in a short time. However, flooding usually develops over a period of days.

Much has been done in Columbus-Muscogee County to reduce damage from flooding. Due to the County's proximity to the Chattahoochee River and to the Atlantic and Gulf Coasts, risk of flooding due to tropical storms is high, but the probability of this type of flooding causing extensive damage is moderate. (Figure 4.3 Flood Zones)

temperate latitudes. Hurricanes slow down as soon as they make landfall and are then reduced to tropical storms or tropical depressions.

HURRICANE/TROPICAL STORM EVENT PROFILE, FREQUENCY OF OCCURRENCE

Probability

Hurricane season occurs from June 1 through November 30. From 1901 to the present, the eye, or the central circulation of 32 tropical systems, has made landfall or significantly affected portions of coastal South Carolina and Georgia. From 1900 until 2011, 16 hurricanes and 16 tropical storms hit the South Carolina/Georgia County Warning Area (CWA).

ESTIMATE OF POTENTIAL LOSSES TO HURRICANES/TROPICAL STORMS

The Deputy Director of Emergency Management of the CCG estimates that the property loss due to effects of Hurricane Opal in 1995 for the community was approximately \$2.8 million. The National Climatic Data Center does not list any damages for Columbus-Muscogee County for Tropical Storm Fay, but the statewide damage was approximately \$1.9 million.

Results from the high wind speeds of hurricanes and tropical storms can include power outages, transportation and economic disturbances, major property damage, and risk of deaths and injuries. In addition, the accompanying rainfall can cause flooding and extensive water damage in low-lying areas.

The GEMA Critical Facility Inventory from GMIS identifies 145 critical facilities endangered by high winds of hurricanes. These 145 critical facilities have a combined replacement value of \$2.1 billion.

The 83,689 non-critical structures in Columbus-Muscogee County have a value of \$5.3 billion.

GENERAL OVERALL SUMMARY OF TROPICAL STORMS

Due to Columbus-Muscogee County's geographical location close to the Atlantic and Gulf coast, the County will always be susceptible to the effects of hurricanes and tropical storms. Most of the hurricanes have already weakened to a tropical storm by the time they reach Columbus-Muscogee

County, but the CCG must prepare its assets and the public for these events. Columbus is and will continue to be an evacuation point for hurricane evacuees.

HAIL

The precipitation originating from shower clouds and thunderstorm clouds can not only be in raindrops, but also in the form of pellets of soft hail or hail stones. Hail stones are small balls or lumps usually consisting of concentric layers of clear ice and compact snow, with a diameter of 0.2 to 4 inches. Because the formation of hail usually requires cumulonimbus or other convective clouds with strong updrafts, it often accompanies thunderstorms. Generally, these events are of great intensity and shorter duration than that from layer clouds. Hail can cause enormous destruction to agriculture, such as fruit orchards and grain fields, structures, and the windows and roofs of vehicles.

HAIL EVENT PROFILE, FREQUENCY OF OCCURRENCE, AND PROBABILITY

Columbus-Muscogee County has experienced at least 57 hail events since 1950, which is a very high number compared to other counties.

Hail the size of quarters (1 in.) or larger was reported 26 out of the 57 times, with the largest hail stones, 3 inches, reported in 1997. At that time, hail up to teacup size, shaped in a discus, was reported in Columbus-Muscogee County. There were numerous reports of cars damaged and store windows knocked out because of the hail. This event also caused the most damage, approximately \$25,000 dollars. Plum-sized hail (1.5-1.75 in.) was reported 9 times. Nickel-size (0.88 in.) hail was observed at least 9 times since 1996, while dime-size hail (0.75 in.) was reported 22 times.

Most hail events take place in the afternoon in which the events can last approximately 15 to 20 minutes, and be accompanied by thunderstorm winds, which can cause power outages when trees and power lines are downed. Another effect can be above average rainfall.

Concerning hail storms, there is no spatial depiction available in the Georgia Emergency Management Agency (GEMA) mapping tool from Government Management Information System (GMIS). The threat applies mainly in the agricultural areas of the county (due to damaged crops).

ESTIMATE OF POTENTIAL LOSSES TO HAIL

In 1997, total property damage was reported to be \$25,000. Other events have caused damage in the lower thousands of dollars. At the moment, it is not possible to calculate estimates for potential losses to future hail events.

The GEMA Critical Facility Inventory Map from GMIS identifies 145 critical facilities endangered by hail storms. These 145 critical facilities have a combined replacement value of 2.1 billion dollars. The 83,689 non-critical structures in Columbus-Muscogee County have a value of \$5.3 billion.

GENERAL OVERALL HRV SUMMARY OF HAIL

Hail events can cause considerable damage, if the weather conditions are right and the hail stones form into large, plum-sized particles. Many thunderstorms in Columbus-Muscogee County have been accompanied by hail, which has caused considerable damage at times.

LIGHTNING

All thunderstorms are not only accompanied by heavy rains and strong winds, but also by lightning. Lightning is a visible discharge of atmospheric electricity, often perceived as a “lightning bolt.” It occurs when a region of a cloud in a thunderstorm accumulates an excess positive and negative electrical charge that is sufficiently large enough to break down the resistance of air. In a typical thunderstorm, about two-thirds of all lightning discharges take place within the cloud or from cloud to cloud. When a flash of lightning strikes the earth’s surface, the damage is caused through the large current flowing in the return stroke, or through the heat generated by this current. Temperatures in a bolt can reach up to 50,000° F in just a split second, and the electrical charge can be as much as 100 million volts. Lightning is accompanied by thunder, which is caused by the rapid heating and cooling of air near the bolt of lightning.

While thunderstorms and lightning can be found throughout the United States, they are most likely to occur in the central and southern states. The state with the highest number of thunderstorm days is Florida. According to the Vaisala’s National Lightning Detection Network Cloud-to-Ground Lightning Incidence in the Continental U.S., Florida has a range of 6 – 14+ flashes per square kilometer per year.

Lightning kills approximately 100 individuals every year within the U.S. and injuries hundreds of other individuals. Most individuals that are struck by lightning are struck immediately before or immediately after the occurrence of precipitation.

LIGHTNING EVENT PROFILE, FREQUENCY OF OCCURRENCE, AND PROBABILITY

Since 1998, five major lightning events have been reported to the National Climatic Data Center in Columbus, in which three of events causing \$10,000 or more in property damage.

ESTIMATE OF POTENTIAL LOSSES TO LIGHTNING

Lightning strikes can cause varying degrees of damage to a building. Most common is the destruction of electrical equipment. Sometimes a fire can result in the structure, further damaging the contents, and potentially destroying the entire structure.

The contents of the Government Center are valued at over \$10 million, since the Government Center houses the Muscogee County Courthouse, the Marshall's and the Sheriff's Office, as well as other government offices.

The GEMA Critical Facility Inventory Map from GMIS identifies 145 critical facilities endangered by lightning. These 145 critical facilities have a combined replacement value of 2.1 billion dollars.

A possible disruption in the distribution of water to the residents of the County in the case of a lightning strike in the North Columbus Water Resource Facility could cause widespread damage of unforeseeable magnitude.

The 83,689 non-critical structures in Columbus-Muscogee County have a value of \$5.3 billion.

GENERAL OVERALL HRV SUMMARY OF LIGHTNING

Lightning is a major threat during a thunderstorm, especially in the summer months. In the past and recently, Columbus-Muscogee County has had its share of lightning and lightning damage. In the United States, 75 to 100 residents are hit and killed each year by lightning. Therefore, it is vital for

the CCG to take this hazard into account in their efforts to educate the population of the dangers of natural hazards.

Precaution measures to avoid being struck outdoors by lightning consists of avoiding natural lightning rods such as tall, isolated trees in an open area or on top of a hill and avoiding touching metal objects such as wire fences, golf clubs, and metal rods.

WINTER STORMS

A freezing rain or ice storm occurs when the surface temperature falls below freezing. High winds accompanied by freezing rain are more likely to become an ice storm. Winter storms can severely disrupt transportation and public facility services, damage property, as well as pose risks to livestock and population. Winter Storms are a widespread weather pattern, accompanied by freezing temperatures, snow accumulation, and ice formation. The freezing temperatures can cause water pipes to burst; snow and ice accumulation on tree limbs can cause damage of property as well as damage electric power lines and disrupt services. Ice-covered roads and sidewalks cause dangerous driving and walking conditions in which bridges are especially susceptible to freezing. All of this can lead to economic losses for the community. The life and health of the residents of Columbus-Muscogee County are also endangered on icy roads and in homes not adequately heated.

WINTER STORM EVENT PROFILE, FREQUENCY OF OCCURRENCE, AND PROBABILITY

One of the biggest snow storms to affect Columbus-Muscogee County and north and central Georgia since March 1993 began early on January 2, 2002 and continued through mid-day on the January 3, 2002.

The historic recurrence interval is every ten years (10.00), or there is about a 10% chance that snow, and ice will strike Columbus- Muscogee County in a given year.

ESTIMATE OF POTENTIAL LOSSES TO WINTER STORMS

Critical facilities are normally not damaged severely during winter storms, although slight property damage can be expected.

The GEMA Critical Facility Inventory Map from GMIS identifies 145 critical facilities endangered by winter storms. These 145 critical facilities have a combined replacement value of \$2.1 billion dollars. The 83,689 non-critical structures in Columbus-Muscogee County have a value of \$5.3 billion.

Most of the damage would be more of an economic nature, due to business and school closures. Residents would be most affected as pedestrians and motorcyclists and hindered in the execution of their daily business. The life of residents can be in danger on the slick streets when they are traveling, or at home if the house is poorly heated. Loss of life is possible during an event of extreme temperatures, because poorly heated houses can lead to hypothermia, especially in senior citizens and infants. This is also true for poorer residents, who do not have the ability to heat their residences thoroughly. Another danger arises when residents try to heat their homes with different heat sources (generators, kerosene heaters), which produces carbon monoxide and the heat sources that ignites combustible materials, which can result in structure fires.

Preparing for cold weather conditions and responding to them effectively can reduce the dangers caused by winter storms.

GENERAL OVERALL HRV SUMMARY OF WINTER STORMS

As can be seen from historical data, winter storms are infrequent, but do occur in Columbus- Muscogee County. These storms occur about every six to ten years; however, these events can cause severe economic disruption. Fortunately, in west central Georgia winter storms have historically been of short duration, approximately one to two days, and that reduces the risk of severe damage. Additionally, the temperatures normally rise above freezing during the day, to give relief from the cold. Property damage can be assumed to be minimal. Danger to the life of older, lower income, and homeless residents, as well as to the life of people traveling on the roads is of more concern and can be met with education and preparation.

EARTHQUAKES

An earthquake is any sudden disturbance within the earth of volcanic or tectonic origin, which is manifested at the surface by a shaking or trembling. Most earthquakes are tectonic, caused by movements along faults, in which the majority of the tectonics usually lie along plate boundaries or the

earth's crust. When the ground slips abruptly along a geological fault plane on or near a plate boundary, an earthquake is initiated. The shaking is caused by seismic waves of vibration traveling through the earth's rocks. The waves create ground motion at the surface, vibrating in a complex manner and result in destruction of buildings and infrastructure on the surface.

EARTHQUAKE EVENT PROFILE, FREQUENCY OF OCCURRENCE, AND PROBABILITY

While some earthquake events can be expected in the eastern part of the U.S., the probability for Columbus-Muscogee County is negligible, with an “effective peak ground acceleration coefficient” of 2-3%g with a 10% probability of exceedance in 50 years, or 6-8%g with a 2% probability of exceedance in 50 years. This coefficient “g” is a measure of the strength of ground movements. All areas with a peak acceleration of 2%g or less, like Columbus-Muscogee County, have a relatively low seismic risk.

According to the USGS Earthquake Hazards Program, there are no known Quaternary faults in Georgia or Alabama. That means that there is no geologic evidence like offset strata on the surface of a fault in this area that has ruptured during the Quaternary (the last 1.6 million years). Faults older than Quaternary are known within this region, but movement of the faults has not been proven to date.

ESTIMATE OF POTENTIAL LOSSES TO EARTHQUAKES

Since any potential earthquake in the Appalachian Mountains in the north of Georgia or in north and central Alabama would be far enough away, it might be felt in Columbus-Muscogee County, but most likely it would cause no substantial damage. No potential losses are therefore expected at this time.

The 145 critical facilities mapped in the GEMA Critical Facility Inventory Map have a combined replacement value of \$2.1 billion dollars. The 63 facilities located in a zone with a slightly higher seismic hazard score have a combined replacement value of \$1.6 billion. The 82 critical facilities in a low-risk seismic hazard zone have a combined replacement value of almost \$0.5 billion.

Should damage occur to the water and wastewater infrastructure, the Columbus Water Works estimates the replacement value of the underground water distribution infrastructure alone to be \$689 million and the sewer collection infrastructure to be \$1.3 billion.

The 83,689 non-critical structures in Columbus-Muscogee County have a value of \$5.3 billion.

GENERAL OVERALL HRV SUMMARY OF EARTHQUAKES

The risk of an earthquake damaging property in Columbus-Muscogee County is very low as earthquakes do not pose a hazard according to the known information.

FIRE EMERGENCIES:

FIRE FLOW AND WATER SUPPLY

The City of Columbus receives its water supply from the Columbus Water Works, which is a public utility. The water supply is taken directly from the Chattahoochee River at Lake Oliver. The Columbus Water Works maintains 1,163 miles of water main and 12 storage tanks with 15.8 million gallons of storage. Normal draw for the system is 32.35 million gallons per/day, however 90 million gallons per/day is permitted. The system has 14 pumping stations with a capacity of 148 million gallons daily. The supply is distributed through three (3) distribution systems, the North Columbus Zone, the High Service Zone, and the Gravity Zone. CWW plans continually to enhance its redundancy and security capabilities related to water supply, and has regular update/ planning/ coordination/ communication meetings with the Columbus Department of Fire and EMS, which have proven to be mutually beneficial.

According to Columbus Water Works records, there are seven thousand two hundred and seventy-two (7,272) hydrants on the city system with new hydrants added for new development. Maintenance of hydrants installed on private property is the responsibility of the property owner. Of the 7,473 hydrants, 201 are private.

CATEGORIZATION:

For business, commercial, industrial and multi-family residential structures the agency utilizes an occupancy vulnerability assessment scoring system (OVAP) to categorize the fire risk in each structure. (Figure 4.4 OVAP Risk Category)

The structure is scored in (10) ten areas of concern and given an overall rating from Low risk to Very High risk based on the numerical score assigned.

LOW RISK= LOW PROBABILITY, LOW CONSEQUENCE

Low risk properties are those, which, if involved in fire, represent a minimal threat to the community. These are less likely to have significant loss of life or financial impact because of the fire. Examples of Low Risk properties are not limited to but, include Open Tracks of Land, Rubbish Fires, Vehicle Fires, and Detached Storage Buildings.

MODERATE RISK= HIGH PROBABILITY, LOW CONSEQUENCE

A moderate risk property has an occupancy load from 26-75 and represents a moderate community impact. These structures have monitored fire detection and at least partial fire suppression. At least 2 or more hydrants are located within 1000 feet and is usually used as a multi family residence. The building construction is ordinary type 3 and usually 2 stories in height. The total square footage is from 5000 square feet to 14,999 square feet. For the purposes of this document 1 and 2 family dwelling are considered to be of moderate risk due to frequency of occurrence.

HIGH RISK=LOW PROBABILITY, HIGH CONSEQUENCE

High Risk occupancies are described as having an occupancy load from 76-125, represent a high community impact if lost and usually have only monitored fire detection with no fire suppression capability. These structures usually have only 1 hydrant within 1000 feet and may be used as industrial/large business/large residential. These structures may be constructed using heavy timber and may range in height from 3-5 stories. The square footage is usually from 15,000 square feet to 29,000 square feet and could be minor infrastructure or contain some hazardous materials.

VERY HIGH=HIGH PROBABILITY, HIGH CONSEQUENCE

Very high risk structures typically have an occupancy load over 126 represent a very high community impact if lost and may have no fire alarm or fire suppression capability. These structures may have no hydrant within 1000 ft. or may be considered critical infrastructure. The building material may be type 5 (all-wood framed) and over 5 stories in height. The square footage may exceed 30,000 and may be industrial or contain significant hazardous materials.

Building OVAP by Risk Category

Territory	Risk Category Low	Risk Category Moderate	Risk Category High	Risk Category Very High	Special Hazards	Total
Station 1	0	569	48	9	65	691
Station 2	327	275	28	9	9	648
Station 3	166	54	0	8	35	263
Station 4	78	120	46	0	3	247
Station 5	24	41	16	0	17	98
Station 6	278	305	69	6	37	695
Station 7	63	46	15	0	9	133
Station 8	448	447	75	18	22	1011
Station 9	87	216	31	0	6	340
Station 10	254	468	18	3	20	763
Station 11	102	102	24	4	28	260
Station 12	53	65	15	0	25	158
Station 14	43	35	15	3	8	104
Station 15	1	7	1	0	1	10
Total	1,924	2,750	401	60	285	5,421

Figure 4.4: OVAP Risk Category

SPECIAL HAZARDS

Special Hazard facilities provide essential products and services to the public that are necessary to preserve the welfare and quality of life in the county. In addition, these facilities support important public safety, emergency response, and/or disaster recovery functions. It is of great importance that the county prioritizes mitigation actions, which reduce the risk of damage to these facilities, which are so essential to the county’s wellbeing. (Figure 4.6 Special Hazards)

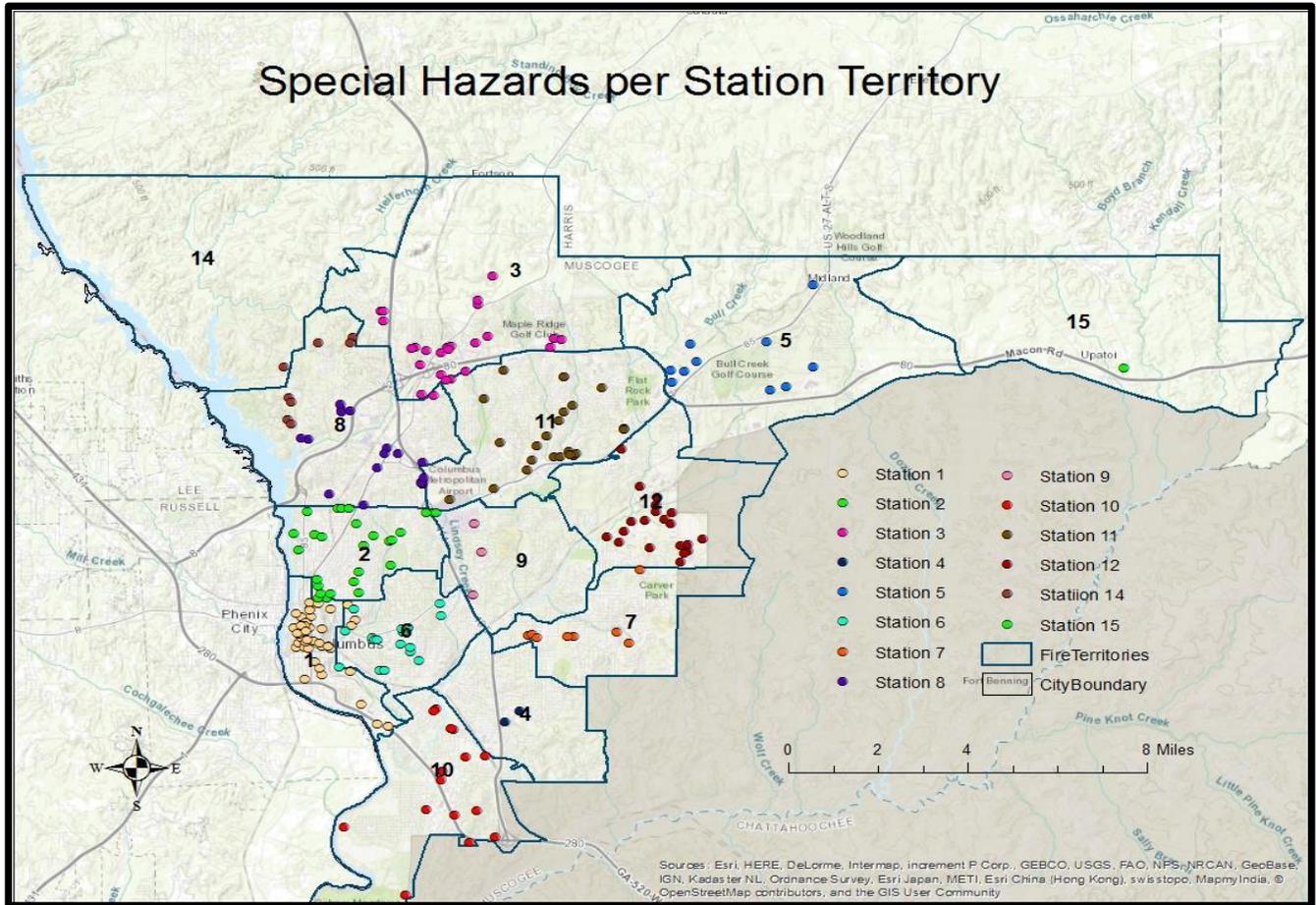


Figure 4.6 Special Hazards

FIRE EVENT PROFILE, FREQUENCY OF OCCURRENCE, AND PROBABILITY

The most probable type of fire event in Columbus Georgia involves a detached single-family residential dwelling. For these events, the Probability is high, and the community Consequence is Low.

According to Department records from 2015-2019 the jurisdiction experienced a total of 1004 Structure Fires; 892 of which were Residential. To include:

- 542 Private Dwellings
- 235 Apartments

- 8 Hotels/ Motels
- 115 Other Residential Units

For all Structure fires, there were:

- 14 Public Assembly
- 4 Educational
- 14 Health Care
- 81 Stores/Offices

From 2015-2019, there were 542 private dwelling fires in the jurisdiction. This accounts for **54** percent of residential building fires for the 5-year period.

The second most probable type of fire event is apartment fires. For these events, the Probability is High, and the Consequence is Moderate due to the increased potential loss of life as compared to private dwelling fires.

From 2015-2019 there were 235 apartment fires accounting for **23** percent of the residential building fires during the 5-year period.

For the 5-year period there were a total of 42 Store or Office fires of a total of 1004 total structure fires. Stores and Offices accounted for **4** percent of total structure fires for the 5-year period.

EMERGENCY MEDICAL SERVICES:

Emergency Medical Services (EMS) refers to the treatment and transportation of individuals experiencing illness or a traumatic injury. The nature of these injuries or illnesses can range from minor to life threatening. The majority of EMS incidents involves a single patient with repercussions to the patient's family, employer, and community. Motor vehicle accidents, workplace accidents, epidemic infectious disease, and other mass casualty incidents can affect multiple patients. From 2015-2019, the department responded to 188,764 calls for EMS services, resulting in approximately 160,000 patient contacts.

EMS PROFILE, FREQUENCY OF OCCURRENCE, AND PROBABILITY

The three most frequent primary first impressions involved Pain (14.8%); followed by Other (9.9%), Weakness (7.4%). (Figure 4.7: Top 10 Impressions)

TOP 10 MOST FREQUENT PRIMARY IMPRESSIONS

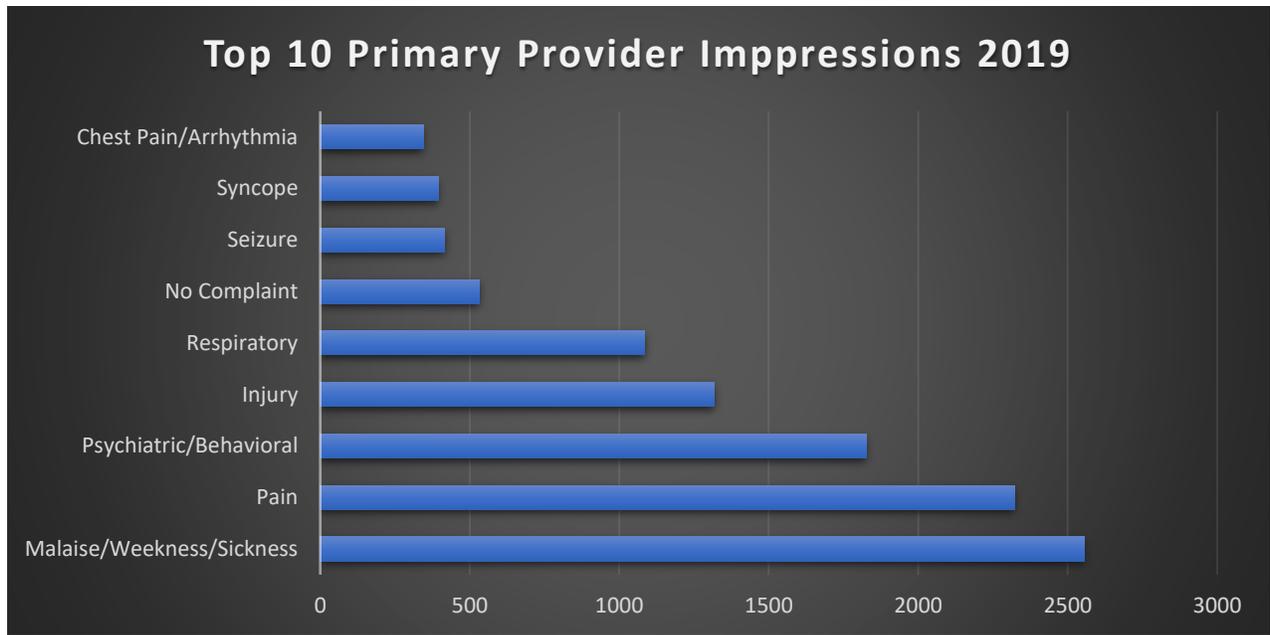


Figure 4.7 Top 10 Impressions 2018

HAZARDOUS MATERIALS:

The term “hazardous materials” (HAZMAT) refers to certain chemical substances, which can pose a threat to the health or the environment if released or misused. People affected by hazardous materials can suffer long-lasting health effects, serious injury, and even death. Sources of such materials are agriculture, industry, medicine and research, and consumer goods. In the United States, an estimated 4.5 million facilities manufacture, use, or store hazardous materials in varying quantities. This is not only true for large industrial plants, but also for local dry cleaners, gardening supply stores, and even homes, where hazardous chemicals are stored and used regularly. The amount of materials is increasing in volume and number of locations. (Figure 4.8: Transportation Map)

Columbus-Muscogee County Transportation Map with 1-Mile Buffer

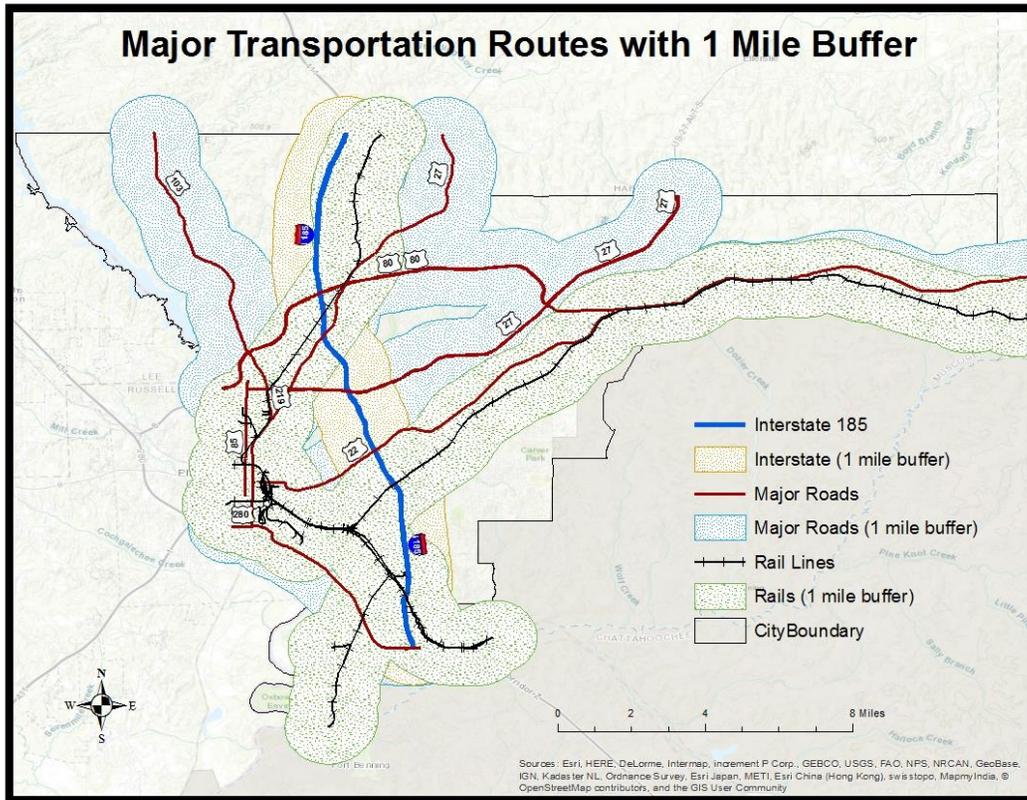


Figure 4.8: Transportation Map

HAZARDOUS MATERIALS EVENT PROFILE, FREQUENCY OF OCCURRENCE

Probability

Hazardous Materials can be accidentally released in two situations: from fixed locations, where the materials are produced, processed or stored, sold. In-transit, when the materials are transported.

To keep track of fixed spills, the Department of Natural Resources keeps a list of all facilities and their chemical inventory, plus a history of spill events. In this Tier II Chemical Inventory for Columbus-Muscogee County are approximately 400 tier II chemicals that are stored within facilities within the County. There are many industrial and commercial locations who store one or more potentially hazardous chemicals and the areas around or near these storage locations are particularly at risk of fixed spills.

Potential losses can be estimated for fixed source spills, because the location and a rough estimate of the hazardous materials are known.

When the Columbus Fire and Emergency Medical Services Department responds to hazardous materials incidents, and the responsible party is known, the CCG charges the responsible party for the cleanup. The CCG only has to pay for the incident mitigation if the cause or source of the incident cannot be found. This case is rare, and especially applies to incidents concerning the Chattahoochee River. A spill of hazardous materials into Lake Oliver from specific points such as pipeline crossings is the most serious threat to Columbus-Muscogee County's water quality, according to the Columbus Water Works management. Non-point source pollution carried in storm water runoff from urban structures is also a matter of concern.

The 83,689 non-critical structures in Columbus-Muscogee County have a value of \$5.3 billion. Among the non-critical structures, the 147 industrial structures are especially endangered of an in-house spill and are valued at around \$20.6 million.

GENERAL OVERALL HRV SUMMARY OF HAZARDOUS MATERIALS

Hazardous Materials have the potential to create significant challenges within Columbus- Muscogee County. Because hazardous materials are handled and stored at over seventy-four facilities in Columbus-Muscogee County, the threat of an accidental release is high. The traffic volume going through the county and major traffic intersections place the community at significant risk of in-transit hazardous material incidents. Employees and residents have a responsibility to ensure the safety of their property, their neighbors' property, and the vicinity when using or transporting hazardous materials, by taking proper precautionary measures.

TRANSPORTATION ACCIDENTS

Transportation is the conveyance of passengers and goods from one place to another. An accident involving a car, bus, train, airplane or other vehicle is a transportation-related accident. When commercial vehicles are involved, where enterprises convey goods in their commercial vehicles, it is also called cargo accident, and hazardous materials spills might be one of the results of transportation accidents.

TRANSPORTATION ACCIDENTS EVENT PROFILE, FREQUENCY OF OCCURRENCE, AND

Probability

Columbus-Muscogee County’s roads are busy, and the combination of congestion, unsafe or illegal speed, and driving under the influence of alcohol and/or drugs or mere lack of attention (distracted drivers) can lead to accidents. The threat applies mainly along the major thoroughfares as depicted in Figure 4.9.

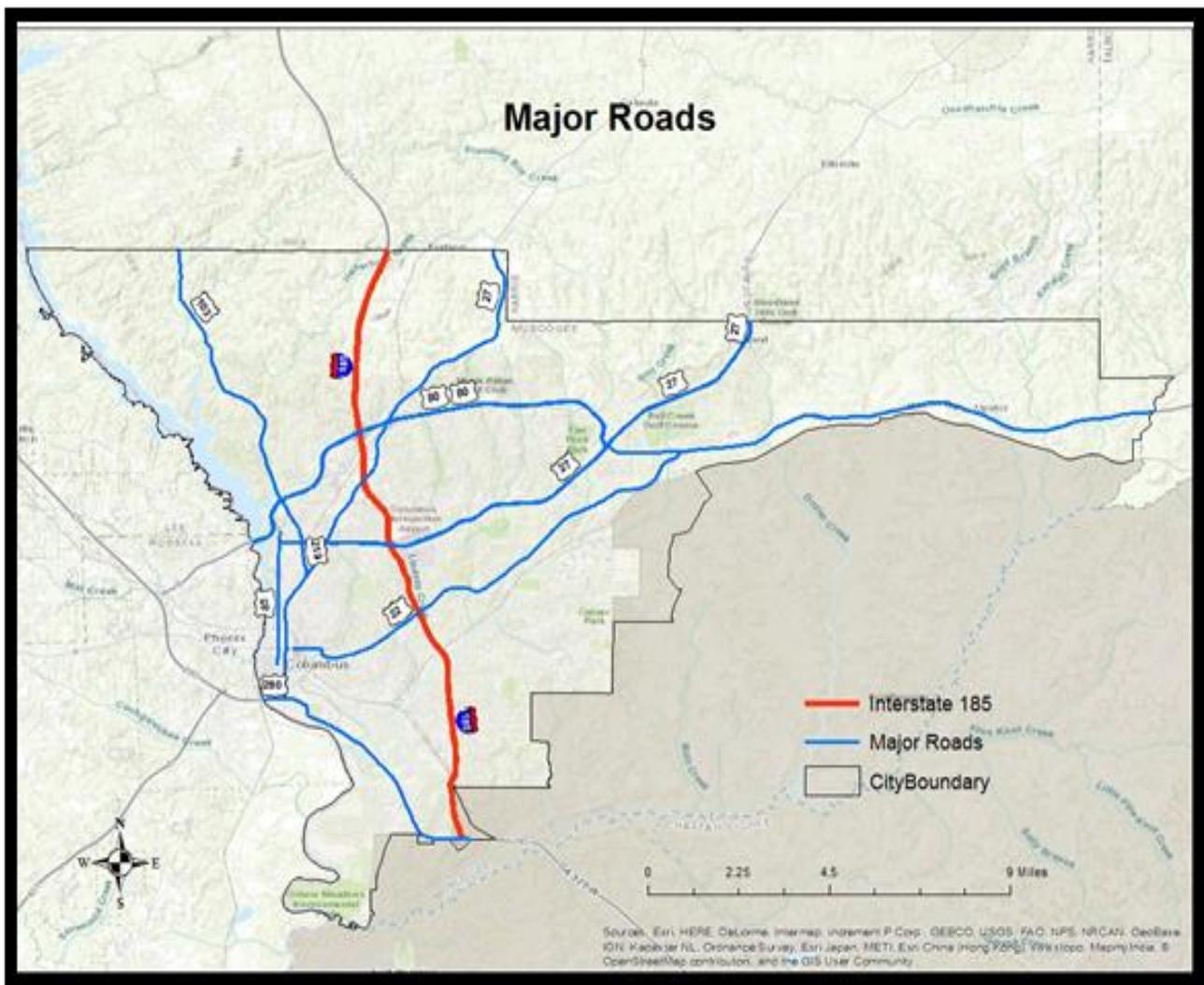
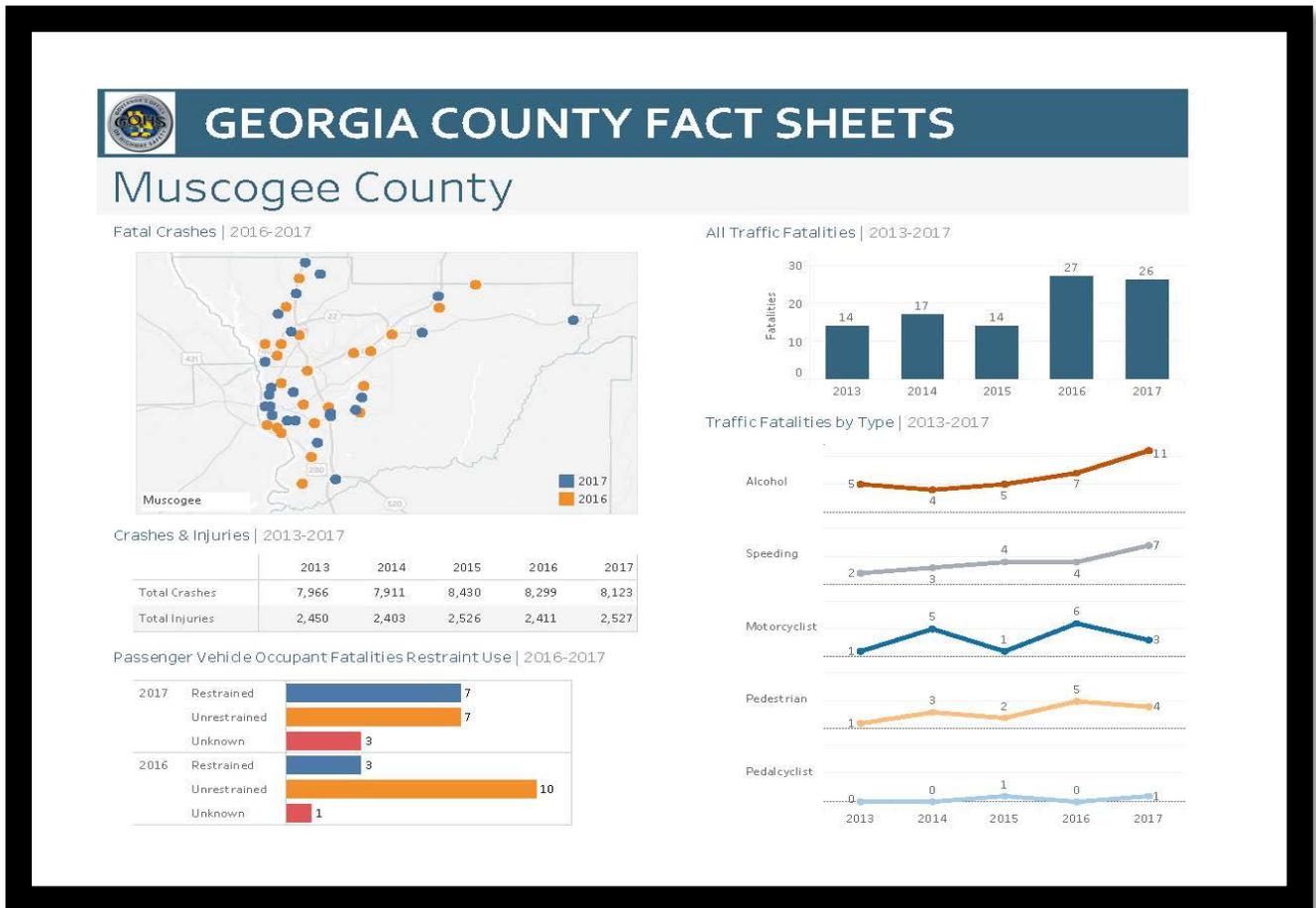


Figure 4.9 Transportation Map

ESTIMATE OF POTENTIAL LOSSES TO TRANSPORTATION ACCIDENTS

Since critical facilities, as well as non-critical structures, are not expected to be endangered by damage from transportation accidents. Therefore, no structural losses are expected.



According to the department for Motor Vehicle Safety, 98 fatalities occurred in Columbus- Muscogee County for the years 2013 through 2017.

GENERAL OVERALL HRV SUMMARY OF TRANSPORTATION ACCIDENTS

Columbus-Muscogee County central location and important role as transportation platform will always cause a high traffic volume on the roads and railroads. It is necessary to do everything possible to limit or reduce the number and severity of transportation accidents.

TECHNICAL RESCUE:

Technical rescue incidents require specialized training and equipment to mitigate loss at certain incidents. These incidents can include trench collapse, structural collapse, high angle rope rescue, swift water rescue, machinery extrication, advanced vehicle extrication, large animal rescue, and confined space rescue. These incidents require equipment beyond what is carried on a standard response vehicle. They also require certifications and training beyond the capability of a typical responding Firefighter/EMT.

Currently, all CFEMS Ladder companies and Engine 15 are equipped with vehicle extrication equipment suitable to handle most common motor vehicle entrapments. Stations 1 and 11 have more advanced equipment and training to deal with rescue incidents requiring a more complex response. These two stations are also geographically remote from each other which allows for a timelier response to complex technical rescue incidents. The table below lists the technical rescue incidents occurred 2015-2019: (Figure 4.10 Technical Rescue Incident Types)

Incident Type	Total per year				
	2015	2016	2017	2018	2019
Extrication of victim from a building or structure (Code 351)	0	0	0	0	0
Extrication of victim from vehicle (Code 352)	6	13	7	7	10
Confined space rescue (Code 355)	1	0	0	0	0
High angle rescue (Code 356)	1	0	0	0	0
Water and ice related rescue, other (Code 360)	0	2	3	0	2
Swimming recreational waters area rescue (Code 361)	4	1	2	1	2
Swift water rescue (Code 363)	9	7	7	4	9
Watercraft rescue (Code 365)	3	0	2	1	2

Figure 4.10 Technical Rescue Incident Types

TECHNICAL RESCUE PROFILE, FREQUENCY OF OCCURRENCE, AND PROBABILITY

The most prevalent technical rescue incidents were:

- Extrication from Vehicle - 43
- Swift Water Rescue - 36
- Water and ice related rescue, other - 7

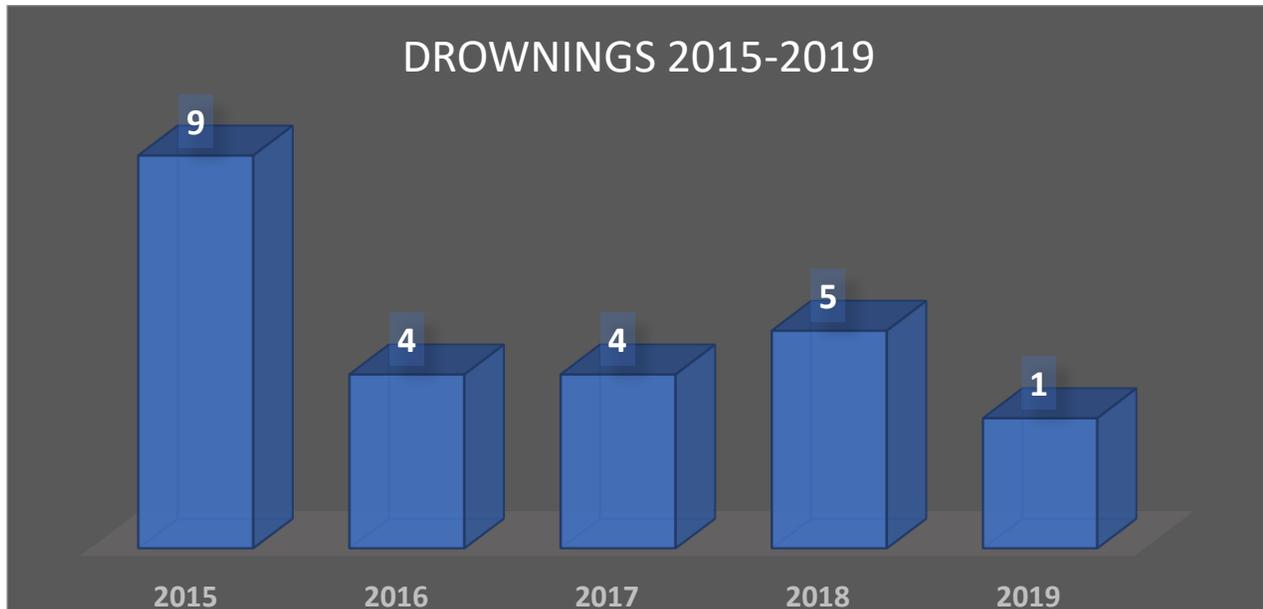
Regarding Vehicle extrications, the Probability is Moderate, and the Community Impact is Low.

For Elevator Rescues the Probability is Moderate and the Community Impact is Low.

For Swift Water Rescues the Probability is Moderate and the Community Impact is Low.

From 2015-2019 there were 23 drownings recorded within the jurisdiction. (Figure 4.11 Drownings)

Figure 4.11: Drownings



TERRORISM:

A standard definition of terrorism is the use of violence to elicit a general climate of fear in a population, with the goal of bringing about a certain political objective or coercing or intimidating a government or civilian population. Terrorists may be members of political organizations, nationalistic and religious groups, revolutionaries, and even state institutions (such as armies and intelligence services).

Terrorism can take many different forms, including but not limited to the use of explosives, taking of innocent civilians as hostages, contaminating water or food supplies, plotting assassinations of prominent figures, or utilizing chemical, biological and /or radiological agents in populated areas.

TERRORISM EVENT PROFILE, FREQUENCY OF OCCURRENCE, AND PROBABILITY

A terrorist attack often is based on a political agenda or national cause. Columbus was designated a Nunn-Lugar-Dominici Domestic Preparedness City in 1997, thus making it one of 157 so designated cities in the United States. As such, Columbus met the federal government's criteria for potential opportunities and threats.

The location of Ft. Benning, the largest Army training post in the nation, is contiguous to south Columbus. A terrorist act on the post would severely impact the army's training ability and the economy of the entire area. A large number of private citizens are employed by Ft. Benning. This heightens the threat level to the county because an attack on the base would also directly affect Columbus.

Within the county, several international and multi-national corporations reside. These corporations and entities are identified in a separate document which is classified and not available to the public. They employ thousands of individuals from Columbus and the surrounding area. The loss of any one of them from a terrorist incident would cause substantial losses to the economy and well-being of the entire region.

Columbus is the trade and economic center for a 16-county region, representing an effective buying income of approximately seven billion dollars annually. A terrorist incident would seriously affect commerce and trade for the entire region.

Critical infrastructure, such as telecommunications, natural gas and petroleum pipelines, banking and finance, air, rail and highway transportation is either centralized in or traverses this jurisdiction. Any interruption to any part of the infrastructure would have a domino effect throughout the region, impacting areas hundreds of miles away. Employment, trade, tourism and even recreation would suffer catastrophic damage.

The majority of the counties contiguous to Columbus are agricultural. A major agri-terrorism event could contaminate the food chain, once again affecting the economy and well-being of the community.

According to data collected by the Columbus Police Department, Crime Analysis Unit, there have been multiple incidents of potential terrorism in Columbus-Muscogee County. (Figure 4.12 Potential Terrorism Events)

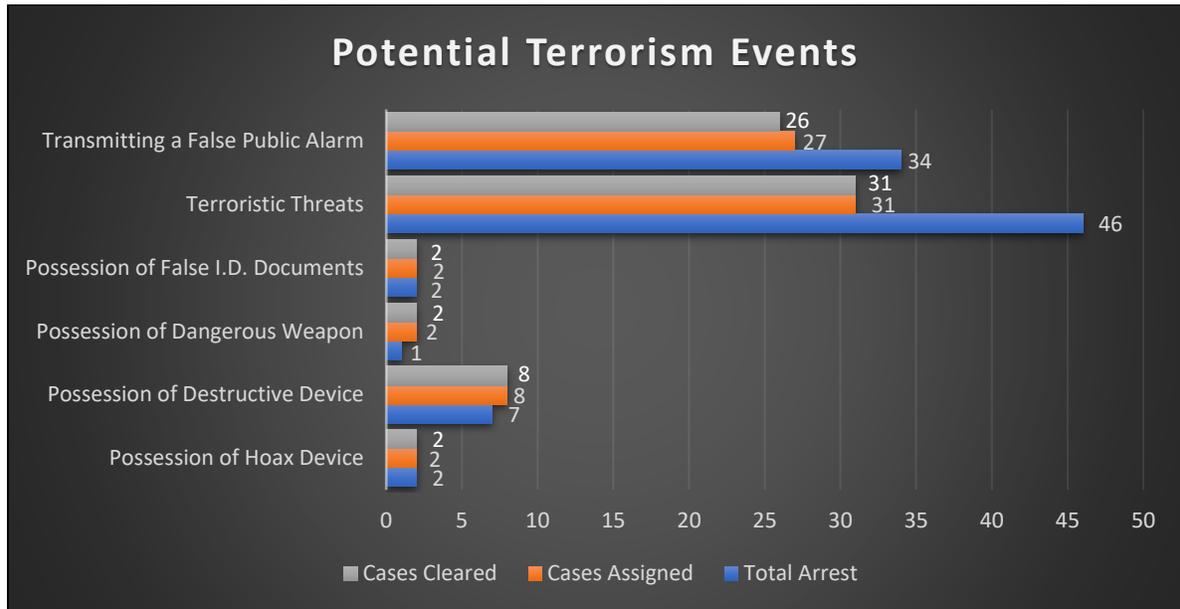


Figure 4.12 Potential Terrorism Events *Source: Columbus Police Department, Crime Analysis Unit*

Among the cases were at least 21 bomb threats, 17 responses to suspicious packages, and 4 responses to explosive or overpressure devices in the past half year.

The Western Hemisphere Institute for Security Cooperation (WHINSEC), formerly known as the U.S. Army School of the Americas (SOA), is a United States Department of Defense Institute located at Fort Benning near Columbus, Georgia, that provides military training to government personnel in US-allied Latin American nations.

ESTIMATE OF POTENTIAL LOSSES TO TERRORISM

The range of terrorist activities vary greatly in their effect on the people, the economy and environment, depending on the type of terroristic act. Losses could range from a single victim to hundreds, possibly thousands, exposed to a chemical, biological, nuclear, radiological or explosive event. Recovery from environmental or radiological acts could take decades. The economic and psychological impacts of any terrorist act would be impossible to measure. The community is aware of the potential threats from a terrorist act and continues to train and gather intelligence to minimize the losses.

The 83,689 non-critical structures in Columbus-Muscogee County have a value of \$5.3 billion. The jurisdiction has identified **285** facilities/buildings that meet the definition of a Special hazard.

CIVIL DISTURBANCE

A civil disturbance is an event or public crisis that disrupts a community and its average, normal peace, and where the safety in the community might be threatened. Intervention is required to maintain public safety. Examples include political demonstrations, riots, prison uprisings, strikes, and public nuisances or assemblies that have become significantly disruptive. Generally, cities with populations of more than 100,000 are more vulnerable to civil disturbances, as are communities with concentrations of ethnic groups or people of disparate economic status.

Effects of civil disturbances include injury to participants and spectators, and property damage. The control of such groups requires law enforcement agencies that have been trained and are experienced in riot control.

CIVIL DISTURBANCE EVENT PROFILE, FREQUENCY OF OCCURRENCE, AND PROBABILITY

Columbus-Muscogee County has not had any events, demonstrations are peaceful and non-obstructive. Any demonstration with more than 15 people must have a permit, demonstrations cannot block any roadway. Community safety is at risk if the demonstration interferes with the normal

operations of the community, and when citizens are prevented access to their offices, buildings or homes, or when there is a threat of physical harm to people.

ESTIMATE OF POTENTIAL LOSSES TO CIVIL DISTURBANCE

The CCG has had to send many members of its law enforcement and fire and emergency services to the site of the protests, which puts a strain on the Government's finances.

The three critical facilities in the vicinity of the main Ft. Benning gate have a combined replacement value of \$8.5 million with Eddy Middle School valued at \$4.9 million, the South Columbus Elementary School valued at almost \$3 million, and the South Columbus Library valued at \$634,800.

GENERAL OVERALL HRV SUMMARY OF CIVIL DISTURBANCE

For twenty-one years, the community has had to deal with the regularly scheduled SOA protest in November. The community has had to be prepared for the event, and its law enforcement units already prepare for it every year accordingly. Damage to property has been minor, no loss of life has occurred, and injuries have been minor. Most of the costs incurred by the CCG involve paying personnel overtime. No permit was applied for in 2017 and no protest was held.

DAM FAILURE

A dam is a barrier that prevents the flow of water, especially when it is built across a watercourse for impounding water. Dams have many benefits, which include navigation, agricultural irrigation, provision of drinking water, and hydroelectric power. Dams are constructed in order to create lakes for recreation, and to help in preventing or reducing floods.

Dam failure can pose serious risks. Dams fail for two main reasons: physical weakness in the structure, caused by a faulty design, wrong operation or poor maintenance, weathering, mechanical changes, and chemical agents; and inundation of the dam by flood waters, such as in the wake of a hurricane. Once a dam breaks, property damage and the loss of life downstream of the dam can be caused through the energy of the water stored upstream.

DAM FAILURE EVENT PROFILE, FREQUENCY OF OCCURRENCE, AND PROBABILITY

To date, no problems have been recorded pertaining to dam failure in Columbus-Muscogee County. Regulation of the Chattahoochee River started when the first of eight privately owned dams were constructed on the river upstream from Columbus-Muscogee County between 1860 and 1962. Lake Oliver Dam was the last of these dams. Oliver Dam between Phenix City, Alabama, and Columbus-Muscogee County impounds the waters of Lake Oliver. Throughout the years, however, the Oliver Dam continues to have updated construction additions. Oliver Dam is owned and operated by the Georgia Power Company and impounds the waters of Lake Oliver. The property line of the reservoir is the 337-foot contour line. The Georgia Power Company has an easement to flood land between the 337 and 342-foot contour line.

The federally funded West Point Dam, about 30 miles' linear distance upstream of Columbus-Muscogee County, was operational in 1975, and is the first dam upstream from Columbus-Muscogee County to have floodplain management as one of its purposes.

Should a breach occur at West Point Dam, upstream of Columbus-Muscogee County or of Oliver Dam between Phenix City and Columbus-Muscogee County, the areas downstream, including uptown Columbus, would be in danger of flooding, destruction and economic hardship.

ESTIMATE OF POTENTIAL LOSSES TO DAM FAILURE

Development in the low areas along the Chattahoochee River or on creeks downstream of the dams would be endangered, but no precise data exists on how many structures might be affected, or what the potential losses would be.

Critical Facilities is about \$401 million; \$319 million for the Critical Facilities in the 100-year flood zone (1% annual chance) and \$82 million for those in the 500-year flood zone (0.2% annual chance).

In Columbus-Muscogee County, the 2,213 non-critical structures endangered by flooding from dam failure have a total value of about \$168 million; \$79 million accounting for residential structures, and \$89 million for either commercial, industrial, agricultural or religious/non-profit structures.

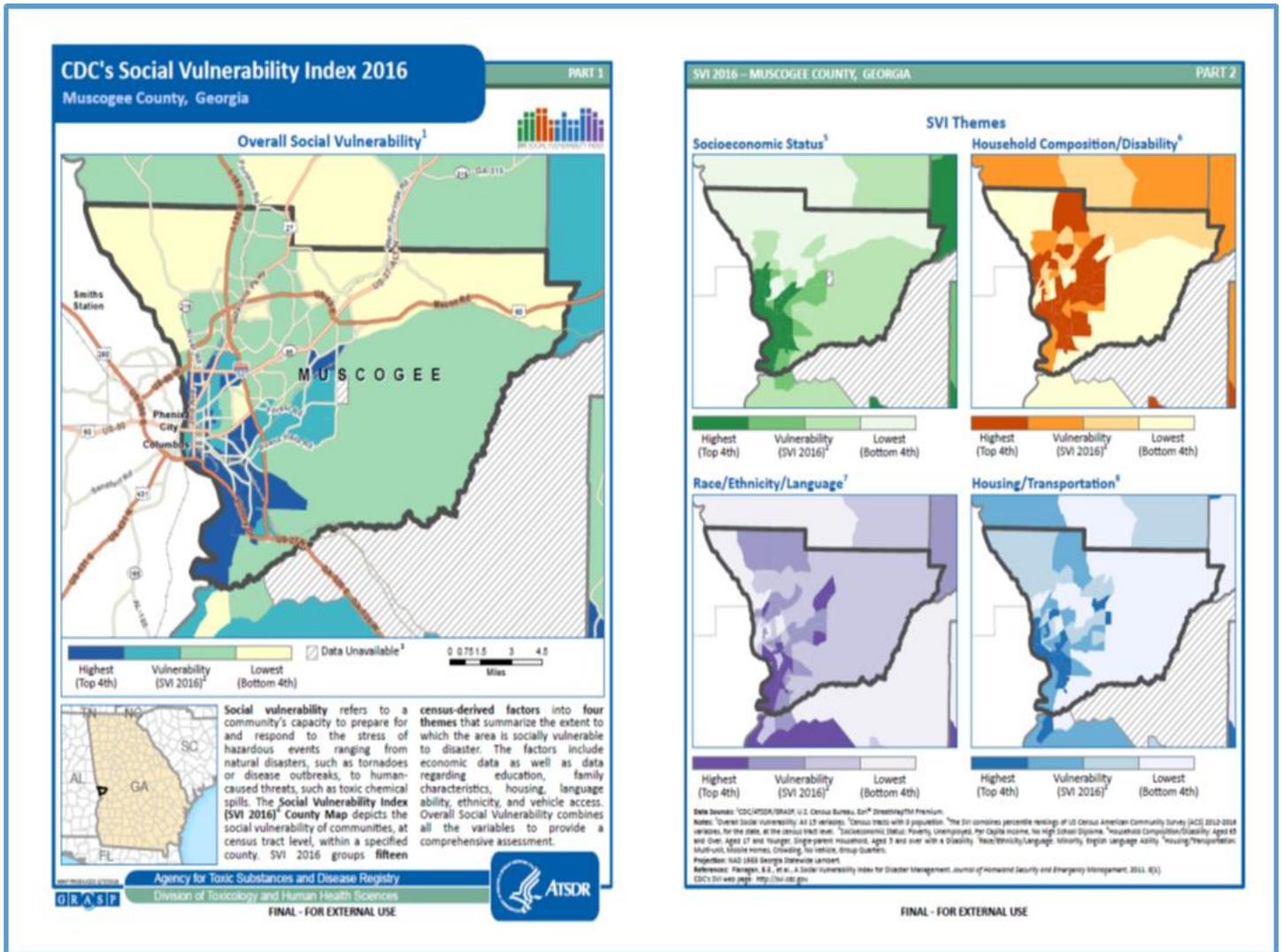
GENERAL OVERALL HRV SUMMARY OF DAM FAILURE

Since the dams on the Chattahoochee River were built by the U.S. Army Corps of Engineers, it is their responsibility to check them regularly for damage. Georgia Power has the ability to open all affected dams in the case of a dam failure upstream, so that damage to the causeways, dams, and bridges downstream, as well as the flooding of the shores, could be kept to a minimum. The CCG operates and maintains thirteen smaller dams within the county.

SOCIAL VULNERABILITY:

A number of factors, including poverty, lack of access to transportation, and crowded housing may weaken a community's ability to prevent human suffering and financial loss in the event of disaster. These factors are known as social vulnerability. The Center for Disease Control, Agency for Toxic Substances & Disease Registry, has created a tool to help emergency response planners and public health officials identify and map the communities that will most likely need support before, during and after a hazardous event.

The Social Vulnerability Index (SVI) uses U.S. Census data to determine the social vulnerability of every Census tract. Census tracts are subdivisions of counties for which the Census collects statistical data. The SVI ranks each tract on 14 social factors, including poverty, lack of vehicle access and crowded housing, and groups them into four related themes. Those themes are Socioeconomic Status; Household Composition; Race Ethnicity and Language; and Housing / Transportation. Each of these themes has been analyzed collectively to generate an overall Social Vulnerability Index. Figure 9 shows this overall vulnerability index for Muscogee County, Georgia – with the dark blue areas indicating the highest vulnerability levels and the lighter areas indicating the lowest levels. (Figures 4.13: Social Vulnerability)



Figures 4.13: Social Vulnerability

SECTION V: CURRENT DEPLOYMENT AND PERFORMANCE

CFEMS has established a dispatch configuration for each incident type to which the department responds. The incident type is based on the type of risk and critical task analysis. CFEMS attempts to provide consistent service levels based on the number of resources available within the city and the distance between these resources.

DATA COLLECTION & ANALYSIS

CFEMS has had the technology and ability to record, store, archive, and recall information pertaining to fire loss, injury and life loss, property loss, and other associated losses. In 2014, the department changed records management systems and began using Image Trend Records Management Software, which is presently used. Image Trend is a National Fire Incident Reporting System 5.0 (NFIRS 5.0) incident reporting software package; it allows personnel to input incident, hydrant, occupancy, training, and personnel information, and retrieve reports regarding the same. The department also uses Image Trend for electronic patient care reporting on all medical calls.

The incident module within Image Trend is used to record all fire and emergency medical services incidents. The incident module complies with the National Fire Incident Reporting System (NFIRS) and National Emergency Medical Services Information Systems (NEMSIS) requirements. CFEMS standard operating guideline (SOG) 01-136 Incident Reporting details the standard used for records management. Each officer in charge (or acting officer) of the station from which a unit(s) responded is responsible for ensuring that each incident record from his/her station has been thoroughly completed with accurate information and includes all narrative information necessary to document specific details of the incident. The Report Quality Control/Quality Improvement process is completed by the battalion chief of the stations within each battalion.

The QA/QI process (Deputy Chief of Operations, Fire Marshal and EMS Coordinator) further reviews incidents for quality control, data entry and archiving purposes. QA/QI personnel are dedicated to the systematic monitoring and evaluation of fire and EMS reports to ensure that standards of quality are met. The EMS Coordinator reviews a minimum of 10% of all EMS reports. Records are corrected as necessary, and quality control issues are addressed through the chain of command. The Medical

Director, department staff, area hospitals and private EMS providers meet on a quarterly basis to ensure proper care is given and any shortfalls addressed.

Quality assurance of fire investigations is the responsibility of the Fire Marshal and the Deputy Chief of Fire Prevention. Fire investigations within the incident module are sealed from field personnel.

CFEMS gained the ability to analyze the response area to determine the impact of deployment changes based on historical data.

CFEMS now utilizes a variety of analysis tools to evaluate historical incidents. Below is a list of some of the analysis tools used:

- Excel Business Services
- Image Trend RMS – storage of records
- Motorola Premier One CAD
- ESRI ArcGIS - ArcGIS is a collection of GIS software products that provides a standards-based platform for spatial analysis, data management, and mapping.

CFEMS has identified an essential need for a planning and data management analyst. The person(s) will be responsible for putting into place these needed processes, analyzing the data, and preparing reports.

DEFINING SYSTEM PERFORMANCE

The measurement of system performance falls into four categories: distribution, concentration, reliability, and comparability.

An adequate distribution of resources is necessary to respond to incidents throughout the jurisdiction, regardless of significance. Distribution of fire companies assures a specific response time performance for a percentage of the calls for service. Ideally, 100% of the community would have a fire company on the scene within the allotted response time. Distribution of fire companies is considered adequate if fire companies can respond to at least 90% of the incidents within the stated travel response-time goal.

Concentration is the spacing of multiple resources arranged close enough so an initial effective response force (ERF) can be assembled on the scene within the Department's established response time goals. An initial ERF will most likely stop the escalation of the emergency for a specific risk type.

Stations and apparatus must be equally distributed in the community to provide a timely initial response for all calls. Additionally, the station locations and staffing patterns must concentrate resources to respond to a major event within the desired ERF goals. CFEMS apparatus have historically been placed based on distribution, while much of the equipment carried had been based on concentration.

DISTRIBUTION

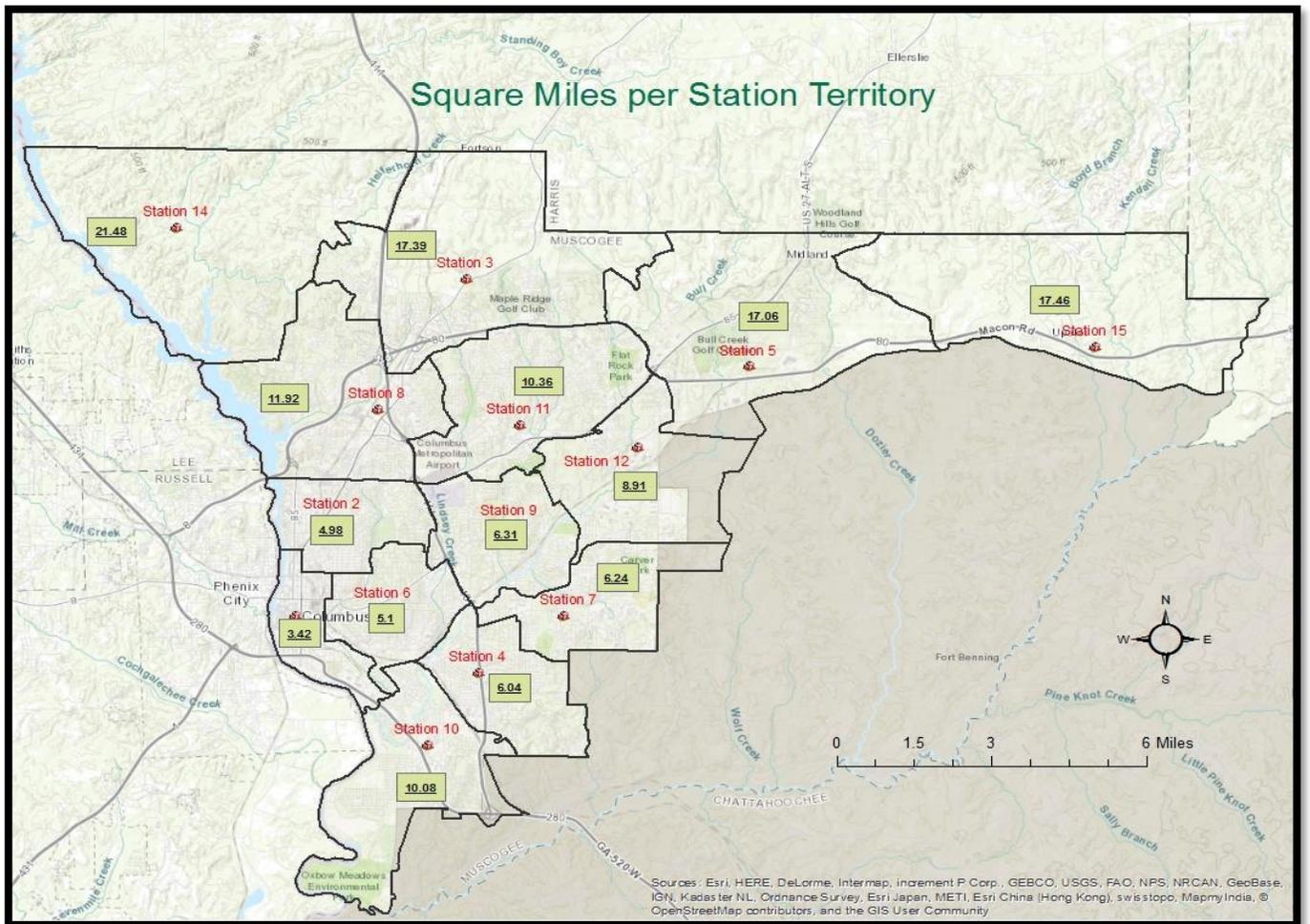
These measures are comparative measurements relative to the distribution of CFEMS resources. An example is locating first-due resources throughout the jurisdiction to provide all citizens with a quick response for initial intervention. CFEMS stations are located to ensure rapid deployment of first-due resources (primarily engines) for the purpose of minimizing and mitigating routine emergencies. The department goal for an equitable level of service is that everyone has a station within five road miles.

In the past, stations and equipment were placed based on the assumption that all areas have the same risk and probability of an event occurring. Every member of the community expects the same level of service regardless of risk. Because of this, stations in Columbus will continue to be distributed evenly around the city.

SERVICE DELIVERY AREA

Columbus spans 220 square miles. Columbus has 1,164 miles of public streets. Each of the 14 first-due territories averages 10.48 square miles. (Figure 5.1 Territory Square Miles)

Figure 5.1 Territory Square Miles



POPULATION DENSITY

The total estimated population served in 2018 is estimated at 194,610. This includes all of Muscogee County. (Figure 5.2: Population Density)

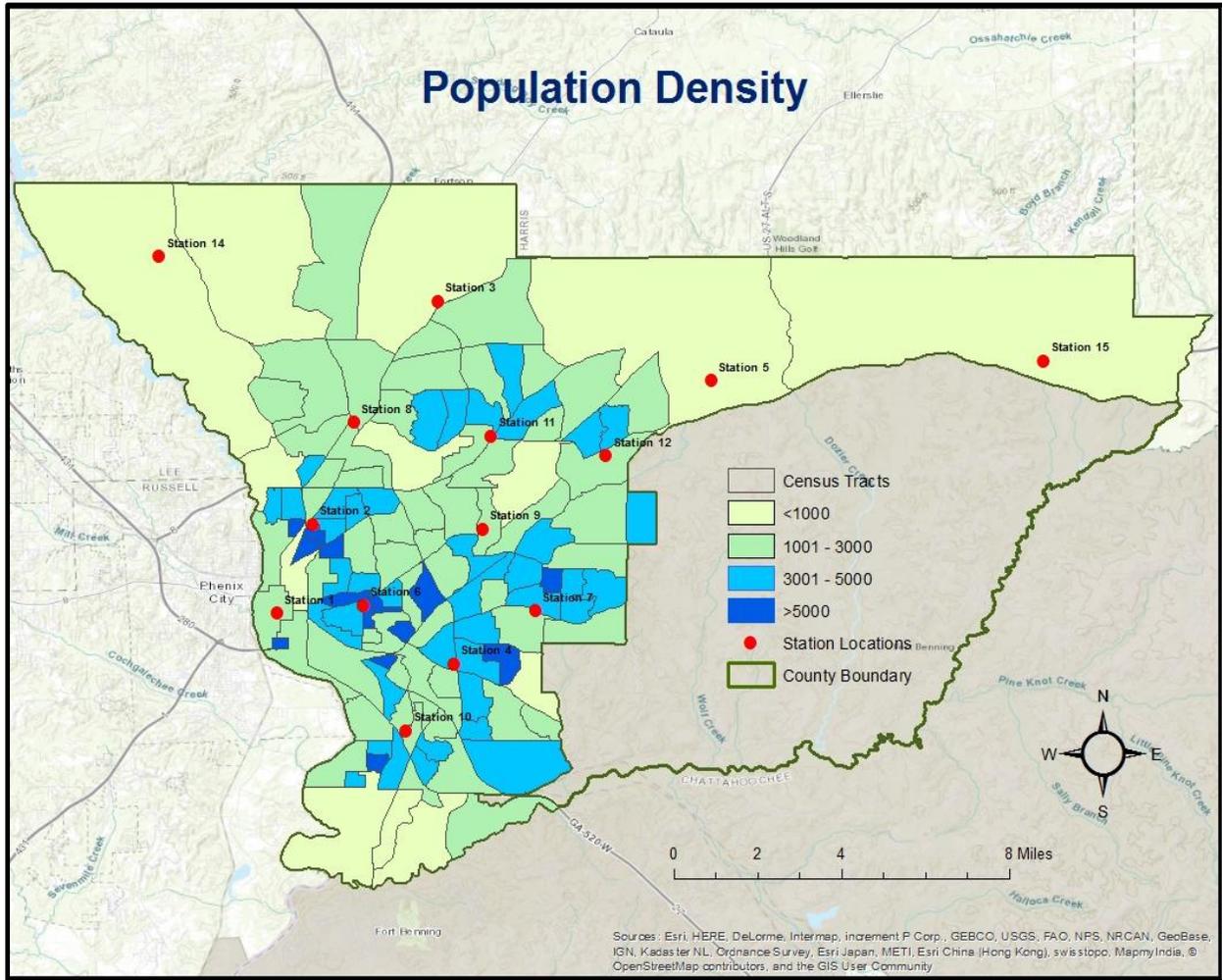


Figure 5.2: Population Density

TERRITORY ANALYSIS

A comprehensive analysis has been done of all first-due territories. The analysis includes identification of heat map, cumulative call volume, and travel time analysis.

ALS RESOURCES

Tracking of medical information and technologies must be ongoing to ensure that a high standard of care is met at every patient contact and to ensure the best possible protection for our personnel.

Data was analyzed that showed movement of current resources would result in minimal improvements. The only movement that would result in significant improvement was moving ALS capabilities to all fire apparatus.

CONCENTRATION

Concentration is the arrangement of resources within the jurisdiction. Resources should be spaced near one another to assemble the Effective Response Force (ERF) for the type and magnitude of the incident. (Figure 5.3: Calls per Year by Station)

Incidents: Incidents per Station Territory by Year

Station	2015	2016	2017	2018	2019	Grand Total
1	2797	2644	2688	2326	2420	12,875
2	3560	3515	3577	3535	2935	17,122
3	1699	1813	2008	1593	1898	9,011
4	2597	2679	2715	2717	2587	13,295
5	556	541	609	638	623	2,967
6	4031	4145	4012	3394	2506	18,088
7	1528	1719	1581	1540	1252	7,620
8	2473	2573	2670	2425	2191	12,332
9	1788	2131	2327	1740	1440	9,426
10	4707	4839	4999	4032	3964	22,541
11	2257	2143	2530	2271	2311	11,512
12	1313	1658	1642	1450	1427	7,490
14	235	324	155	261	256	1,231
15	138	158	146	154	135	731
Grand Total	29679	30882	31659	28076	25945	146,241

Figure 5.3 Calls per Station Territory by Year

Call Density: Station Territory

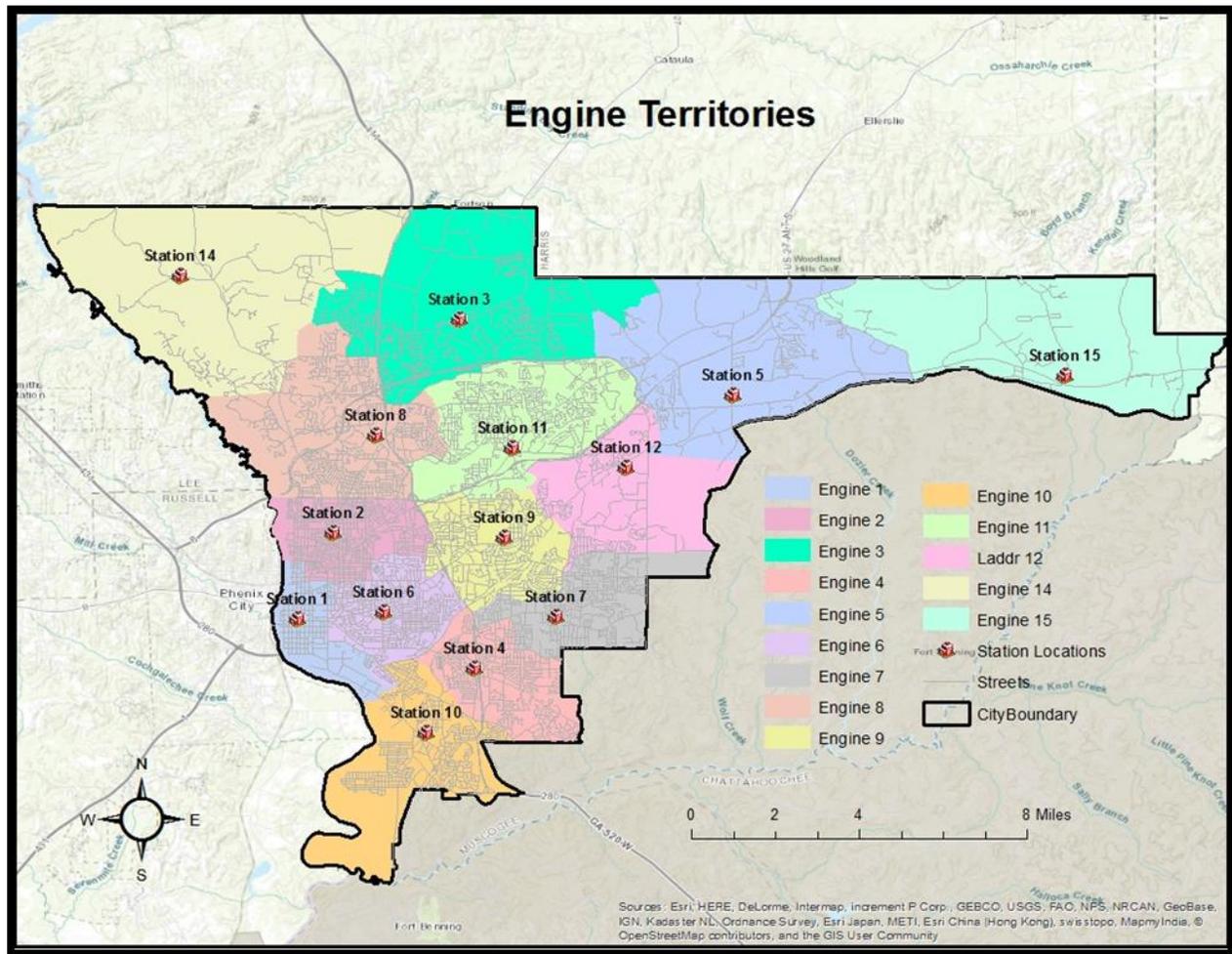


Figure 5.4: Engine Territory

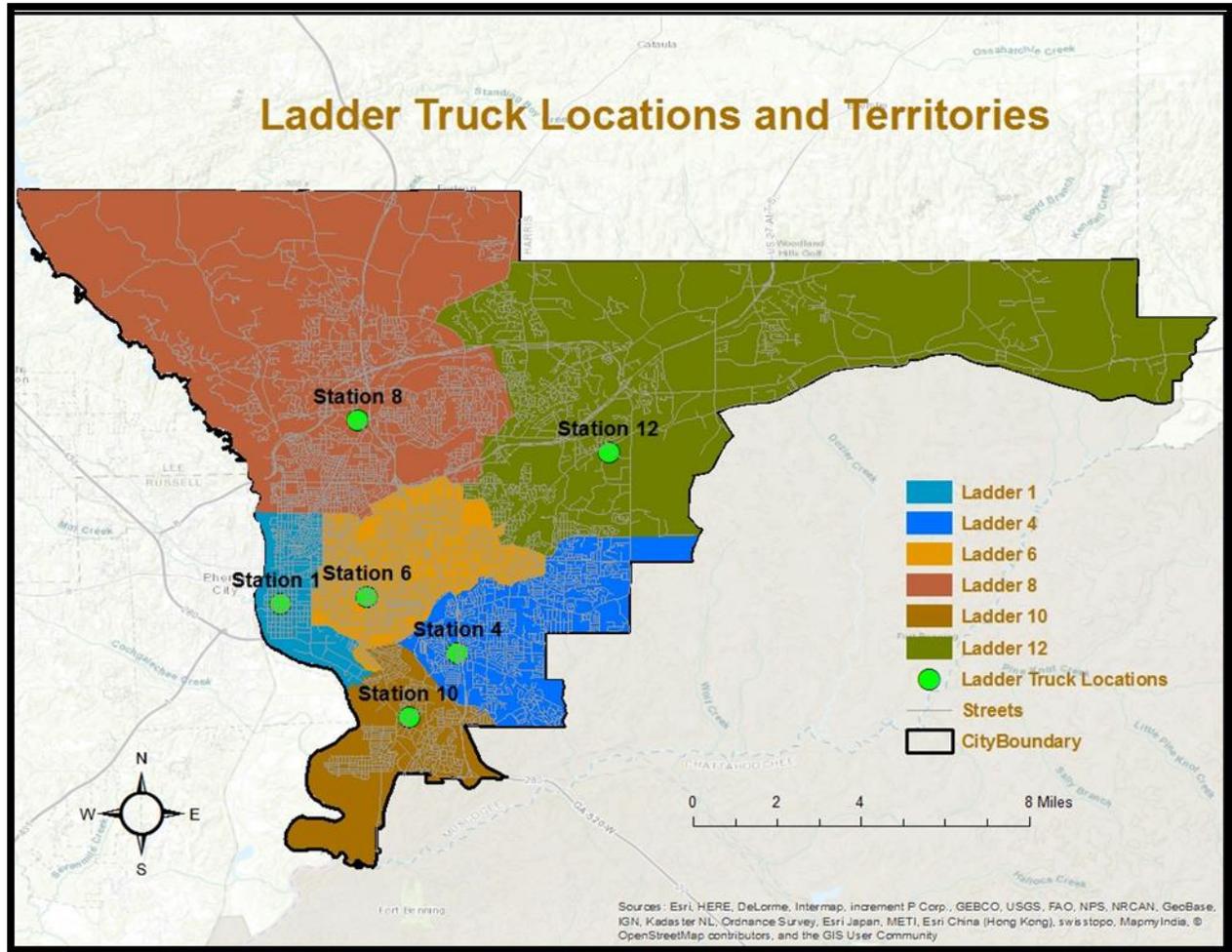


Figure 5.5: Ladder/Quint Territory

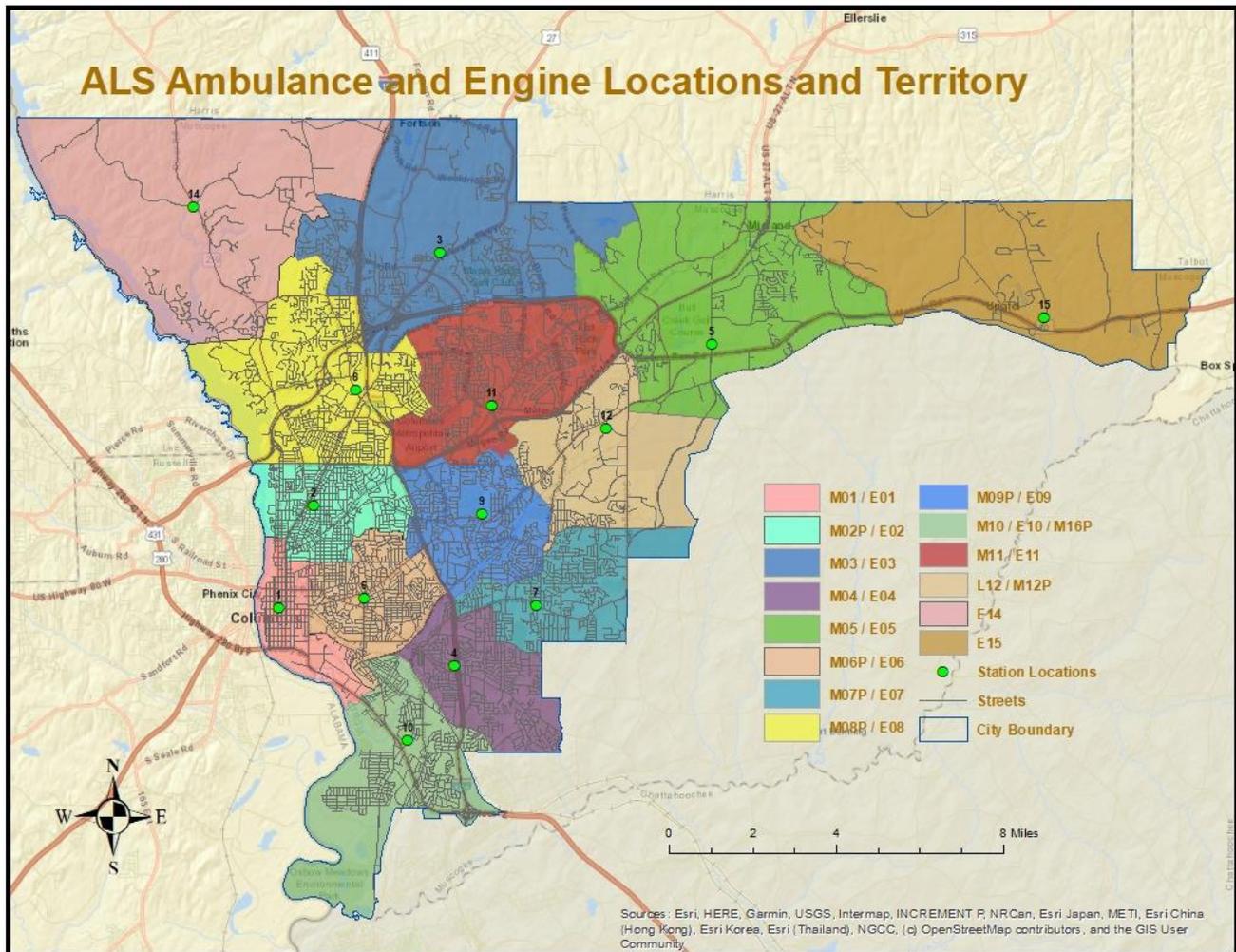


Figure 5.6: Ambulance & ALS Engine Territory

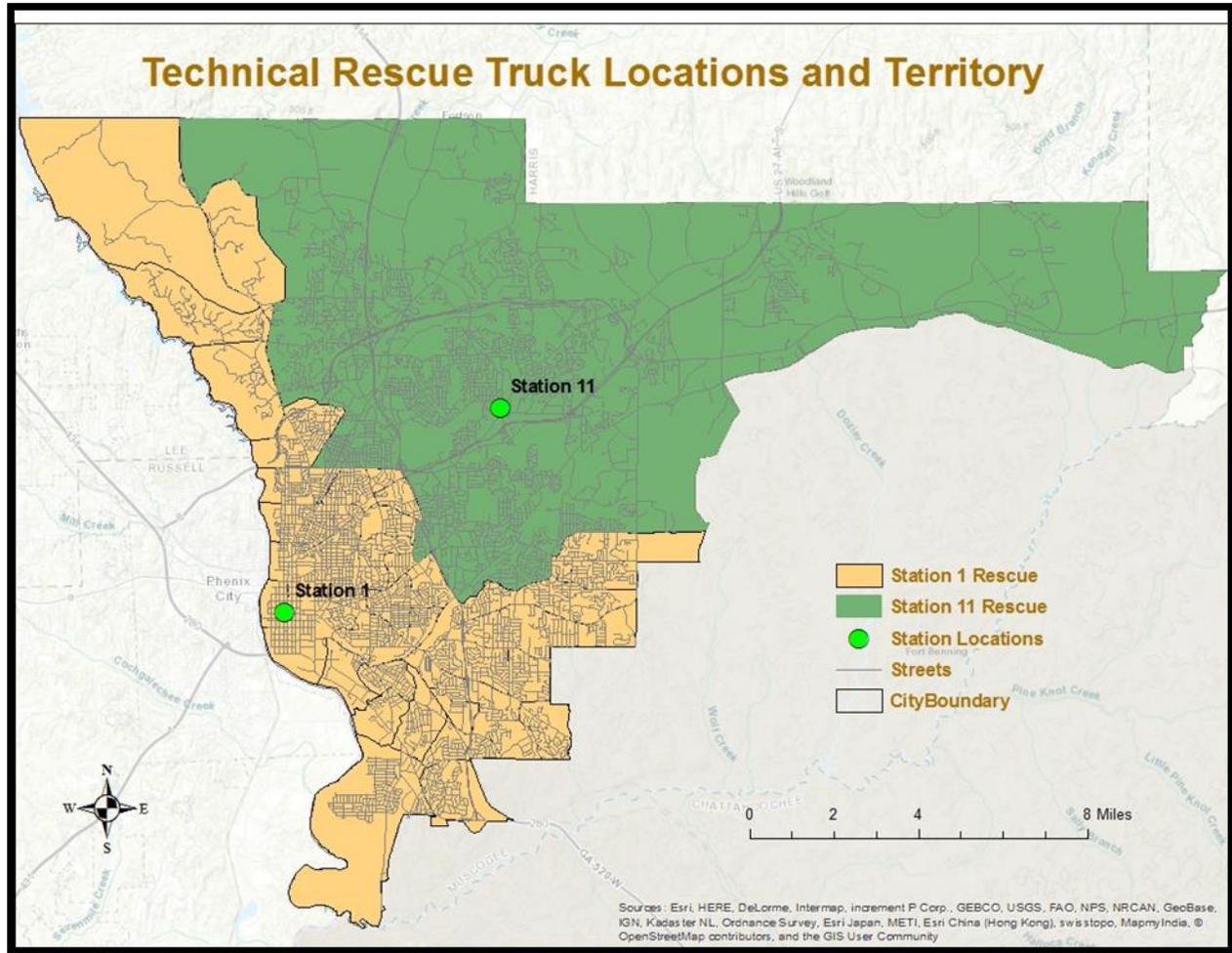
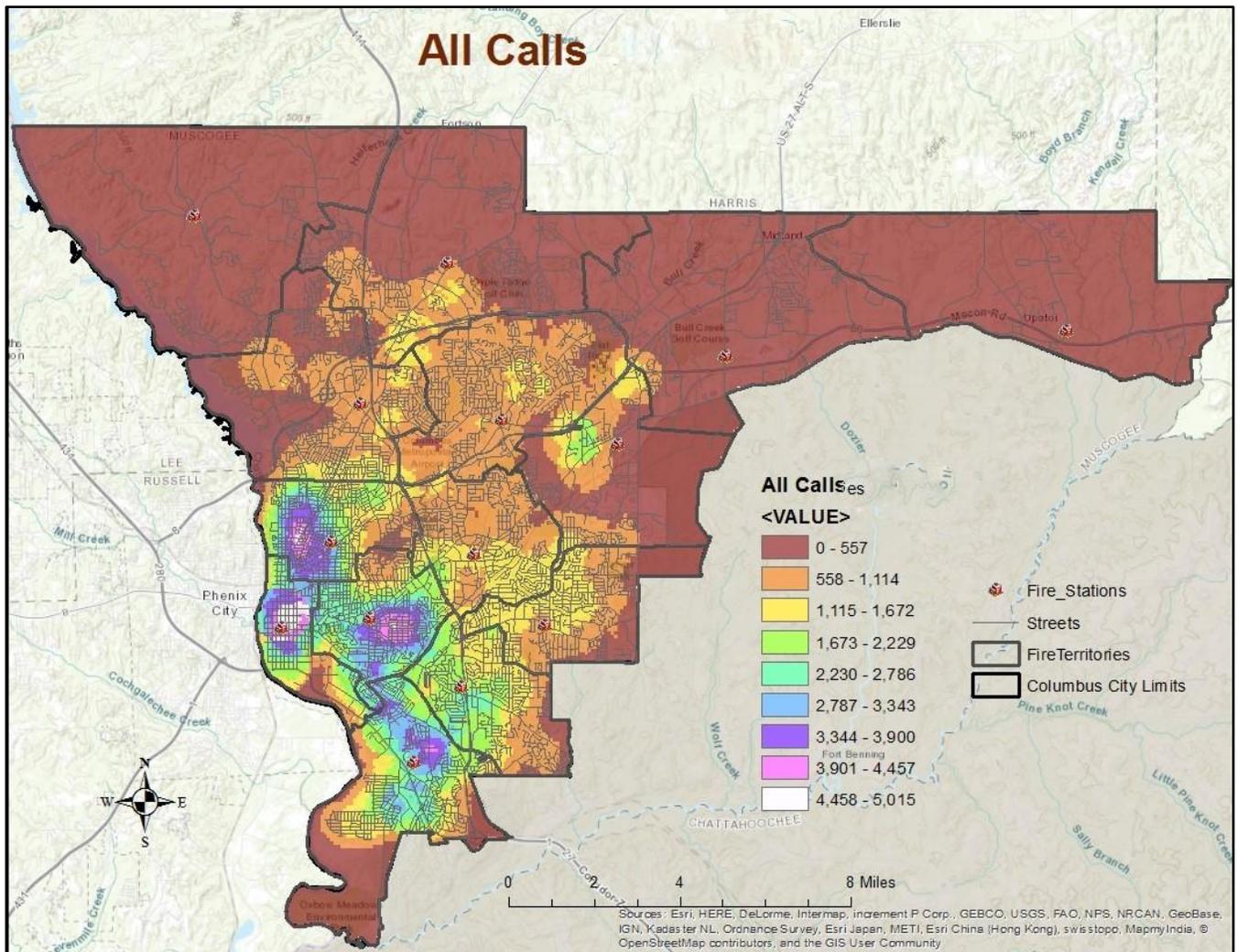
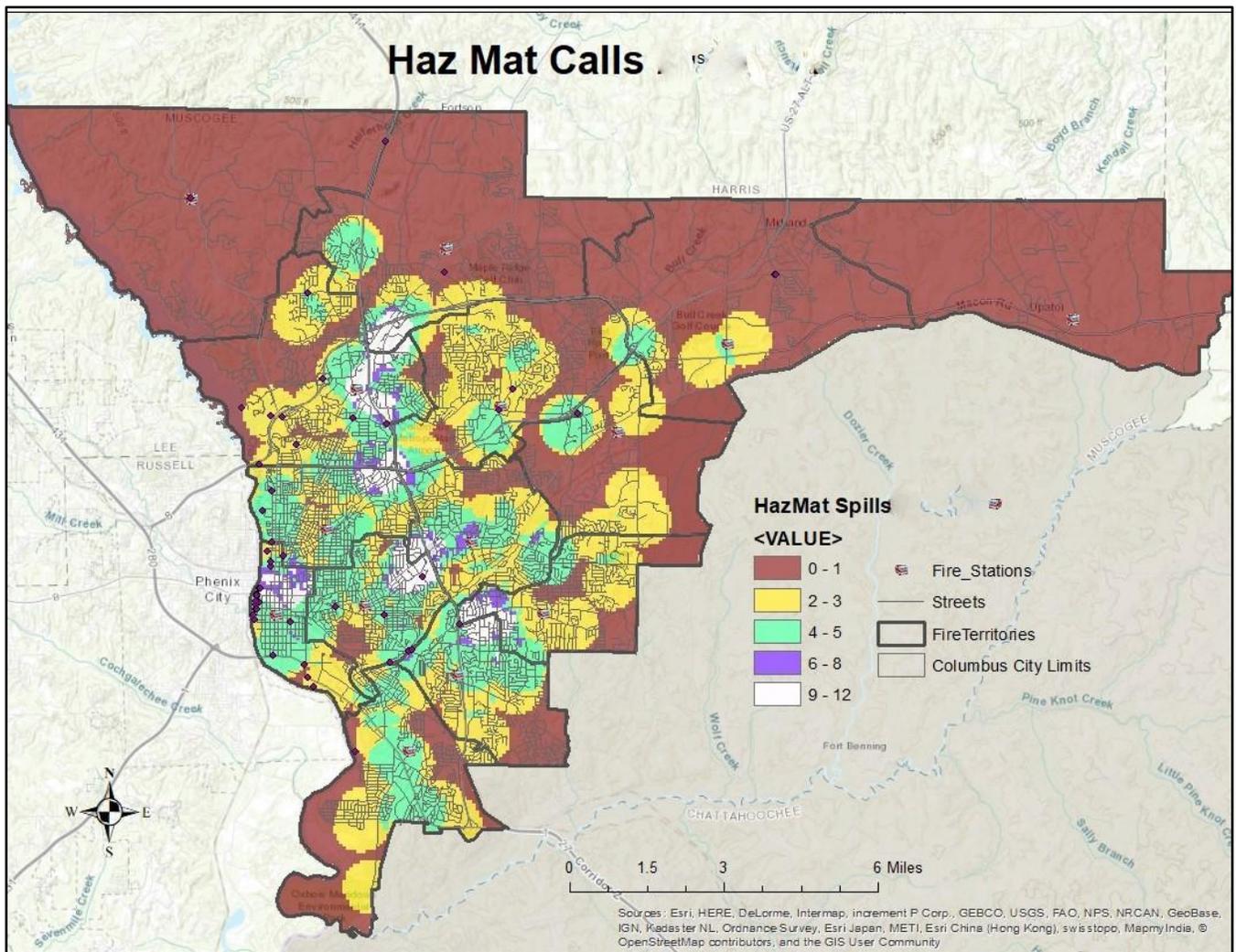
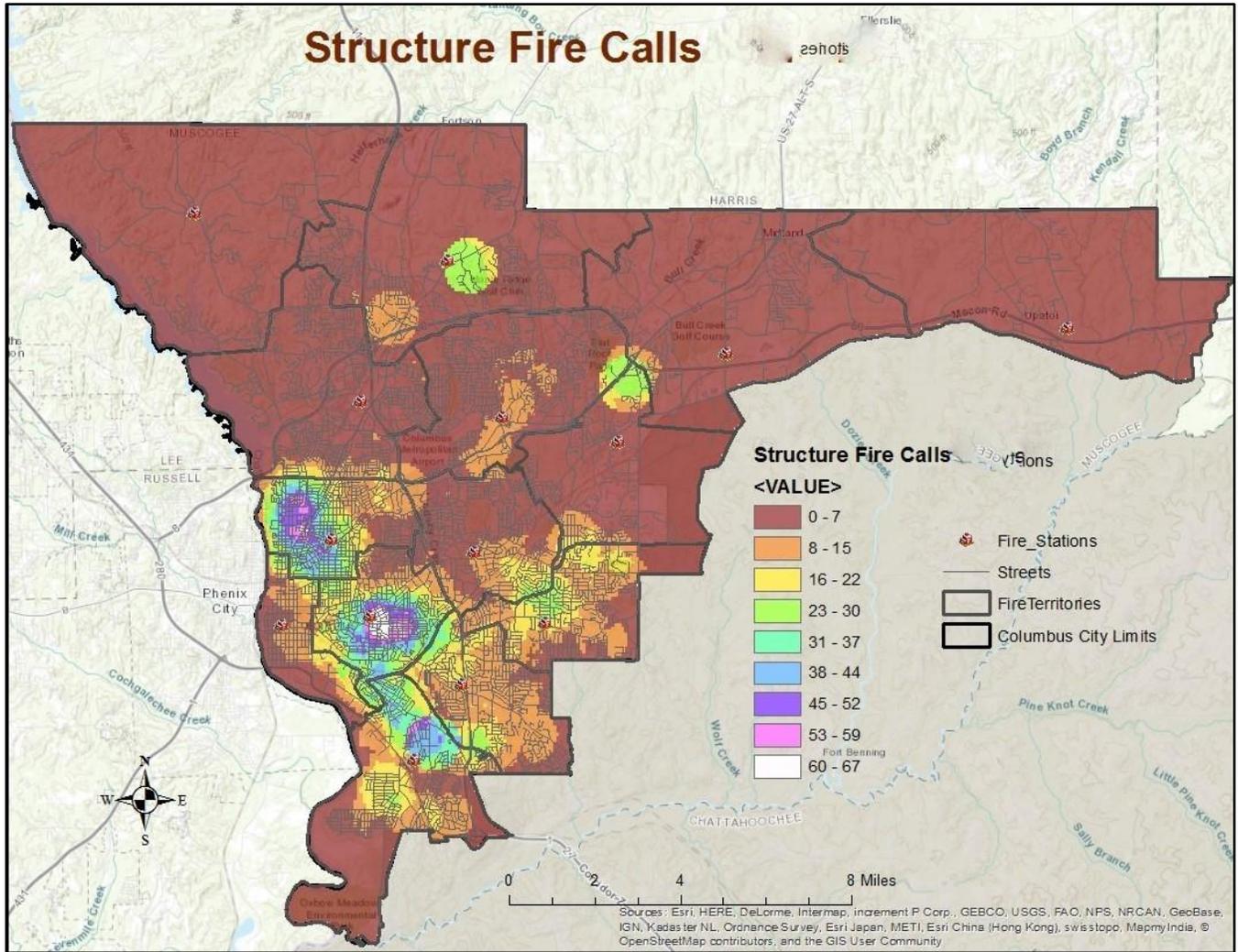
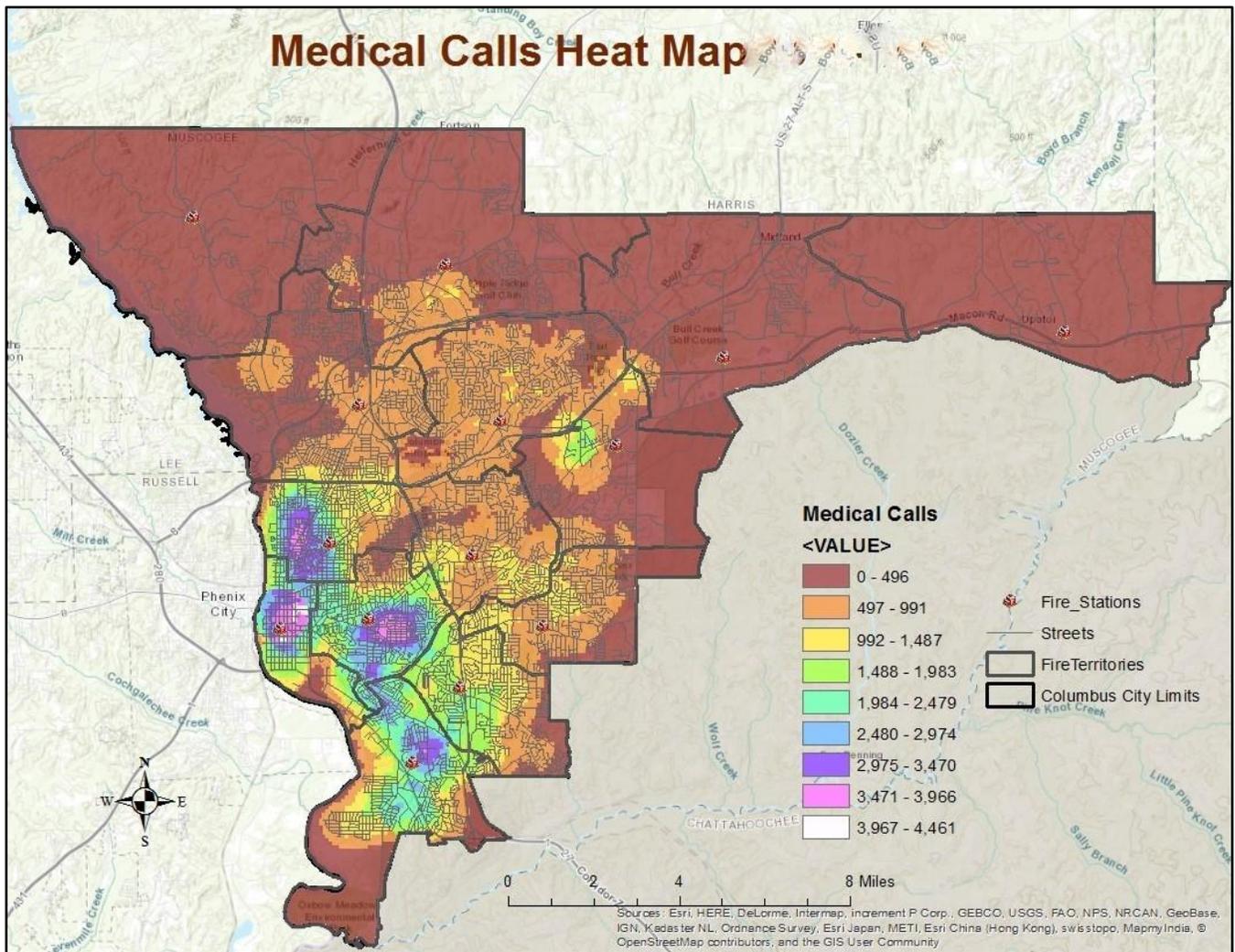


Figure 5.7: Technical Rescue Trucks Locations and Territory









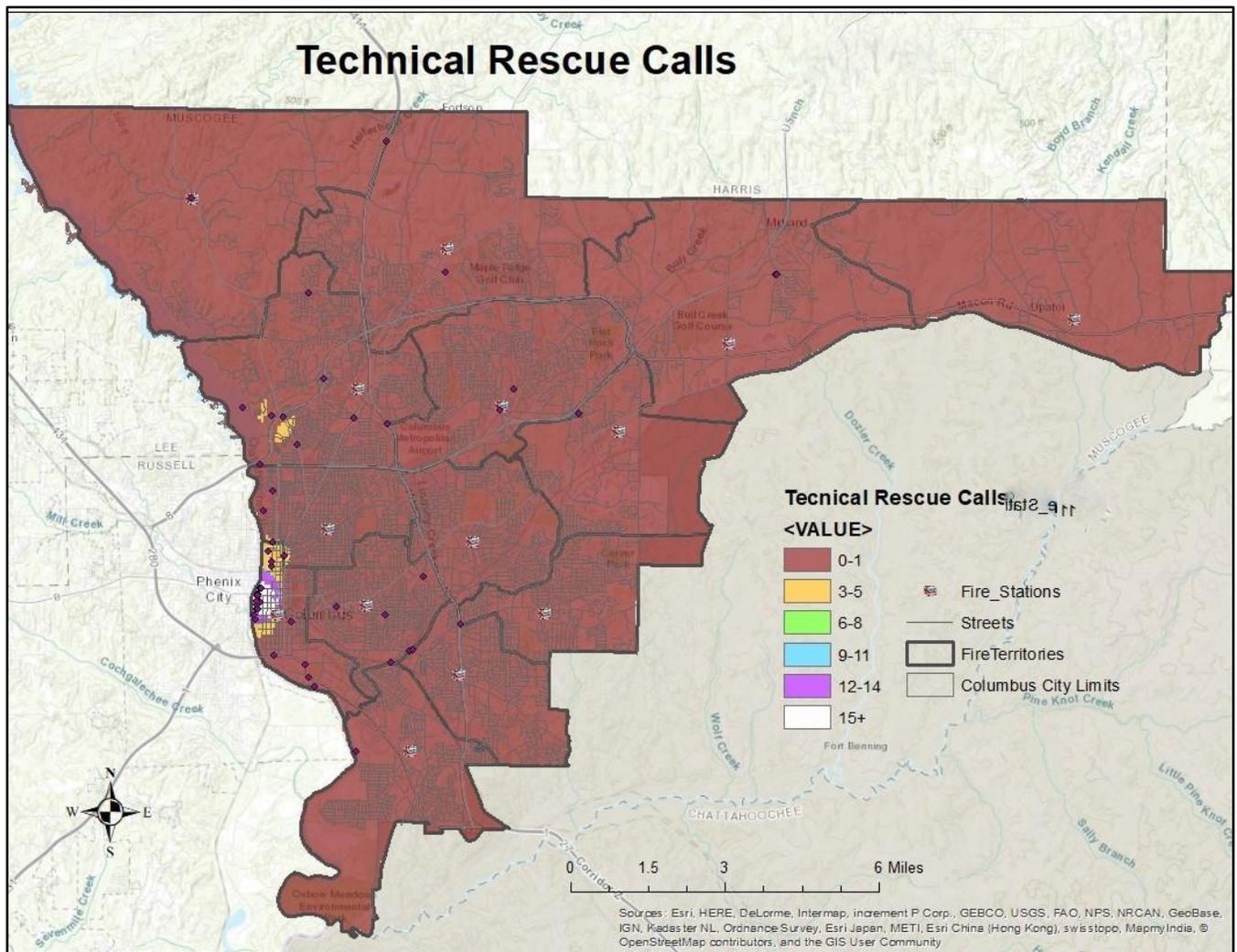
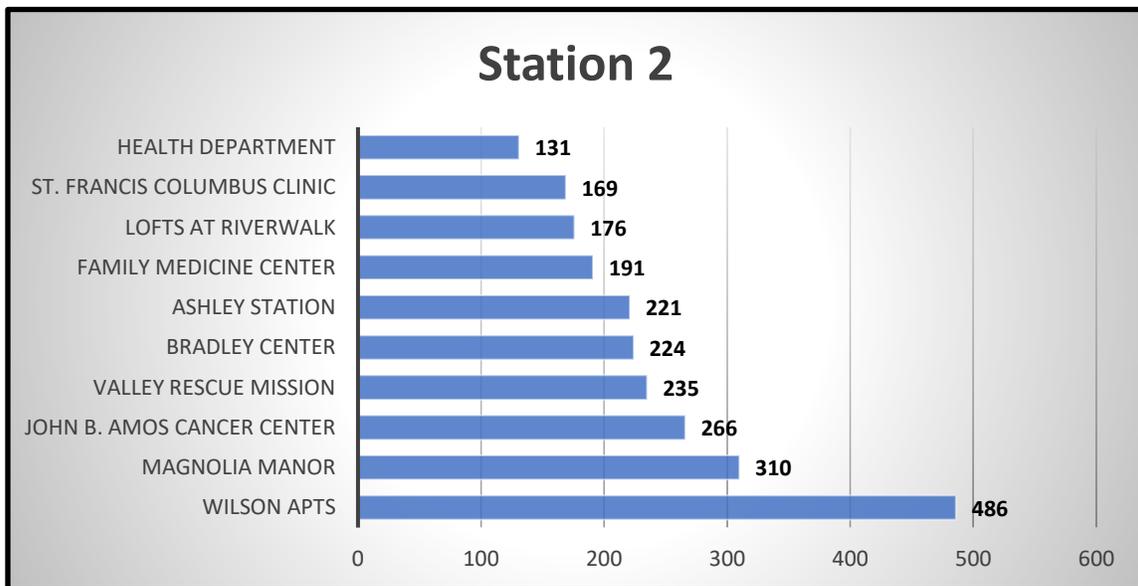
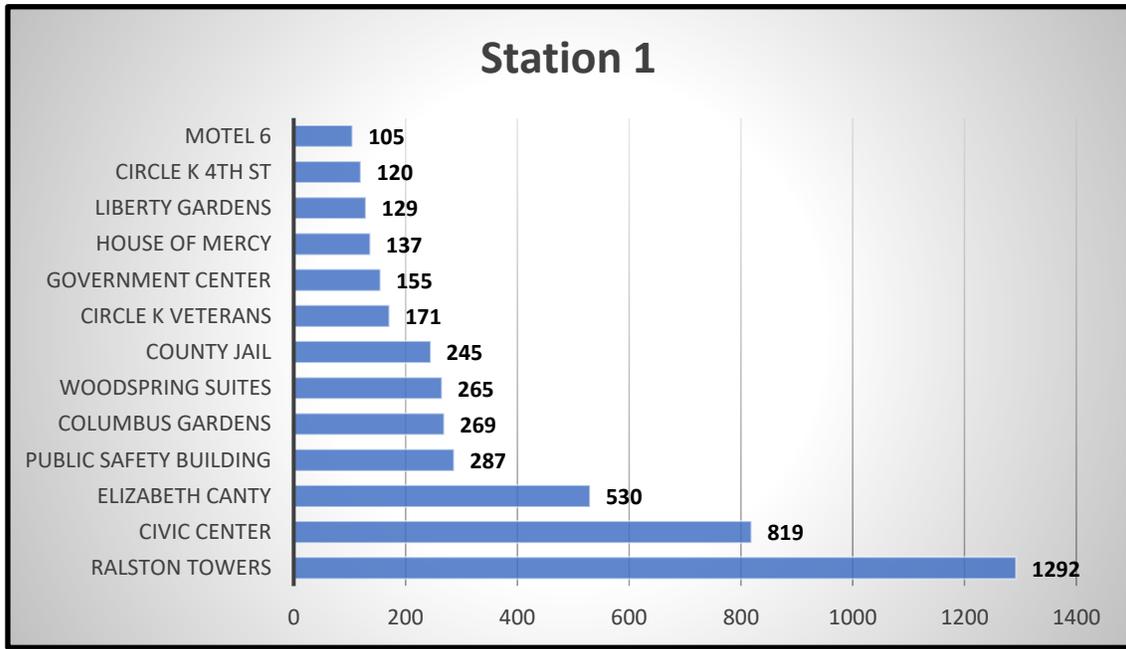


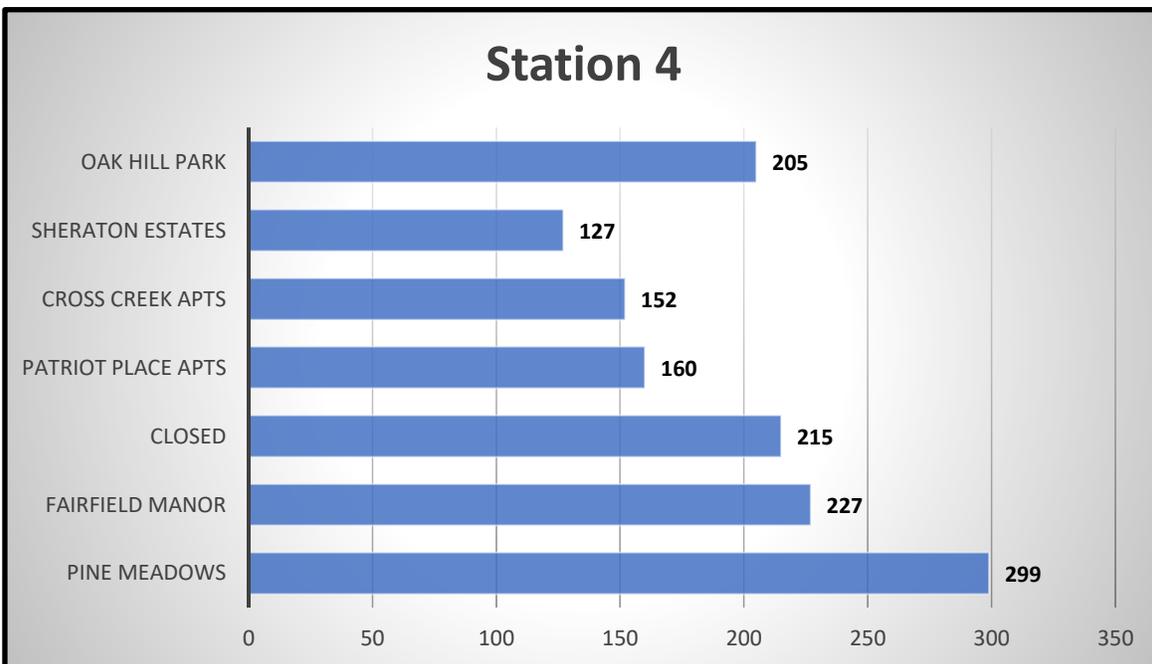
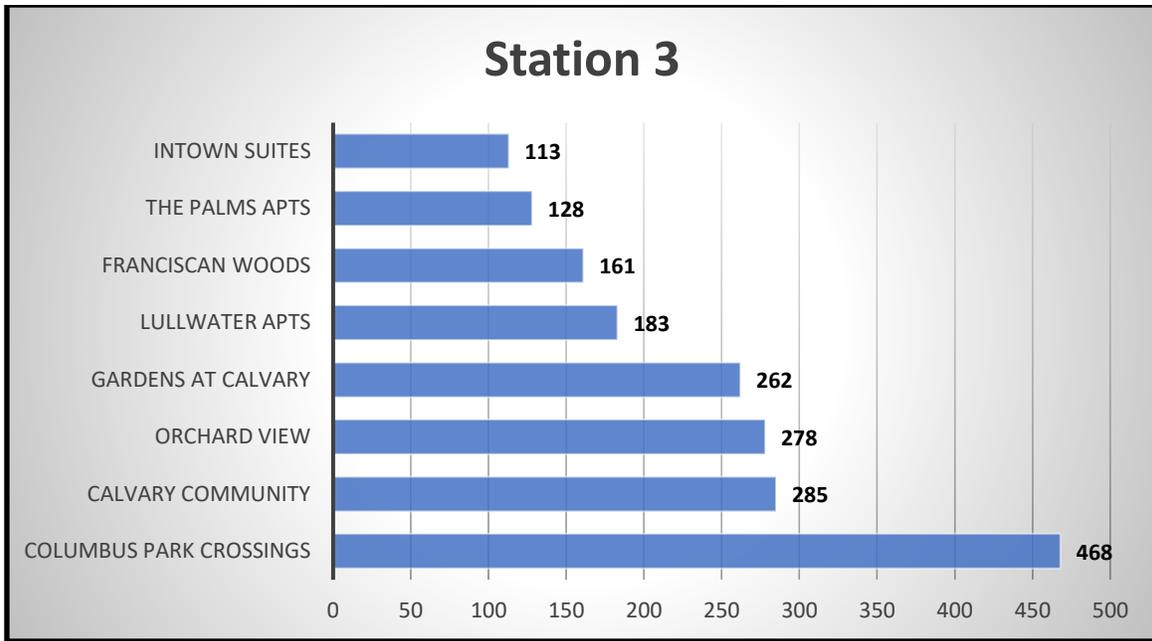
Figure 5.9 Heat Maps

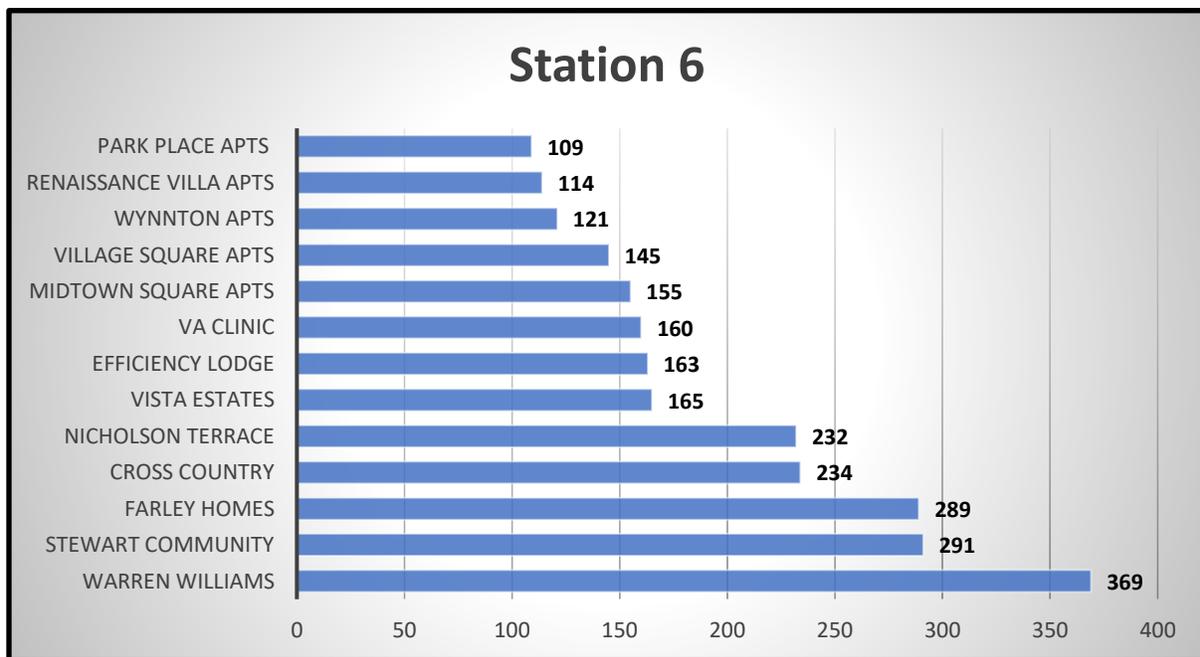
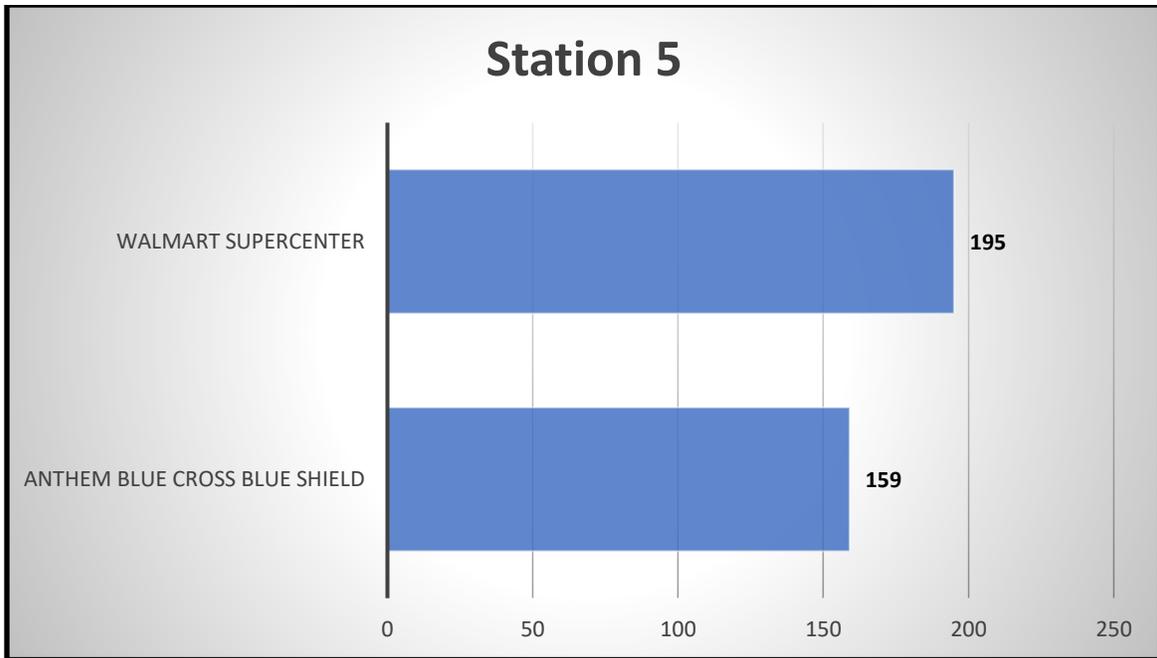
INCIDENT LOCATIONS

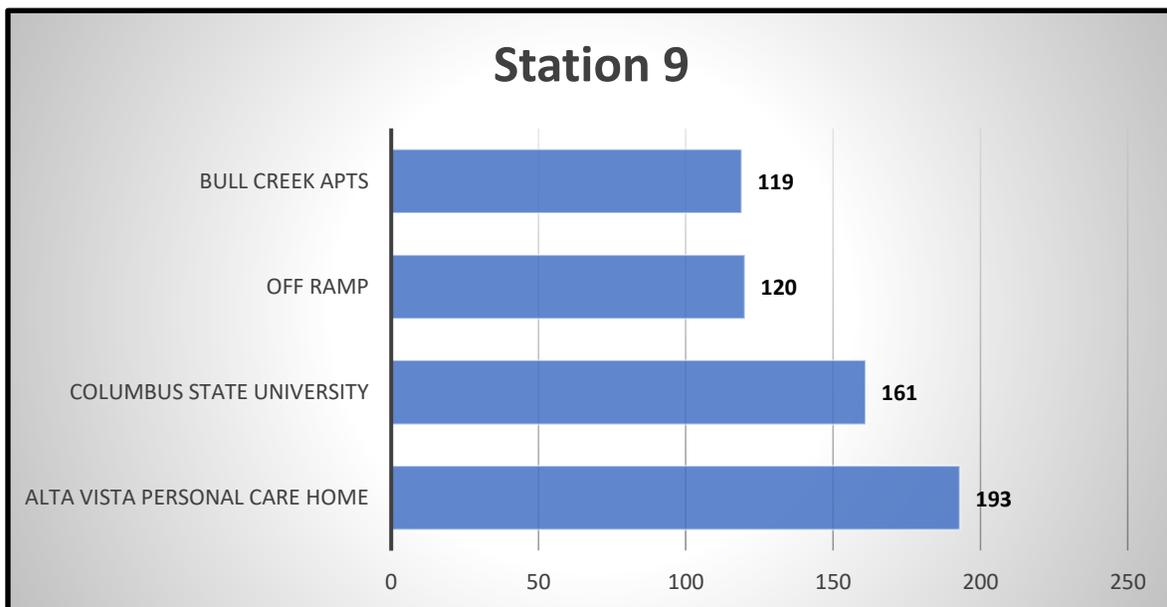
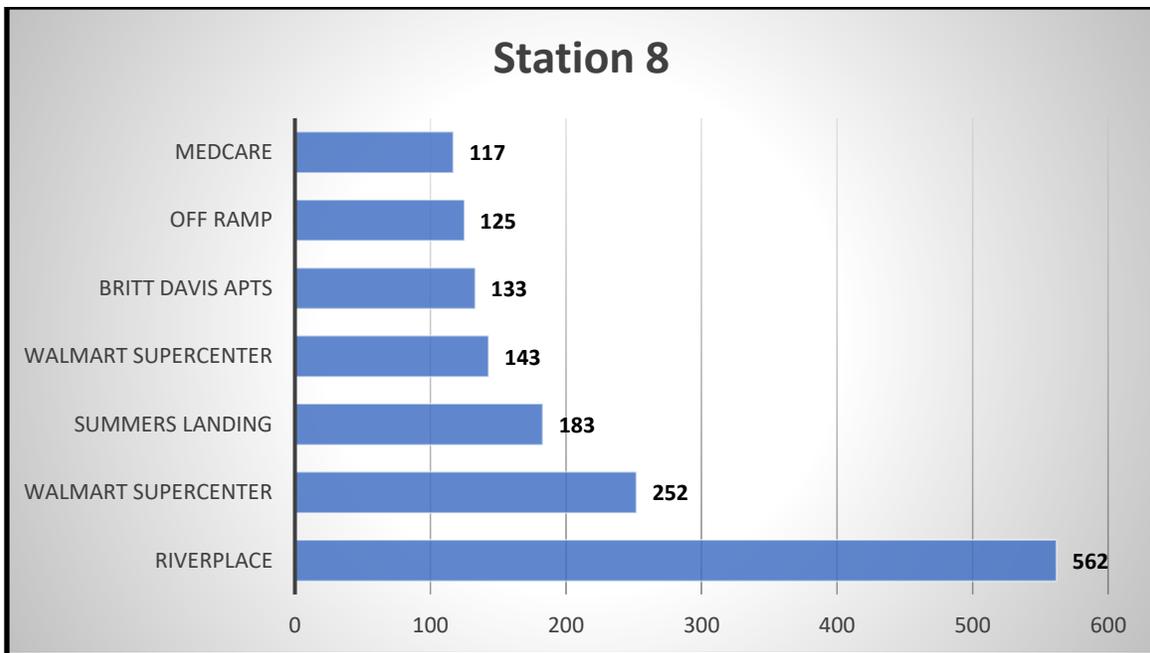
The locations below cumulatively represent the top 100 locations that most frequently utilized 911 services from 2015-2019. (Figure 5.10: Address Frequency per Station)

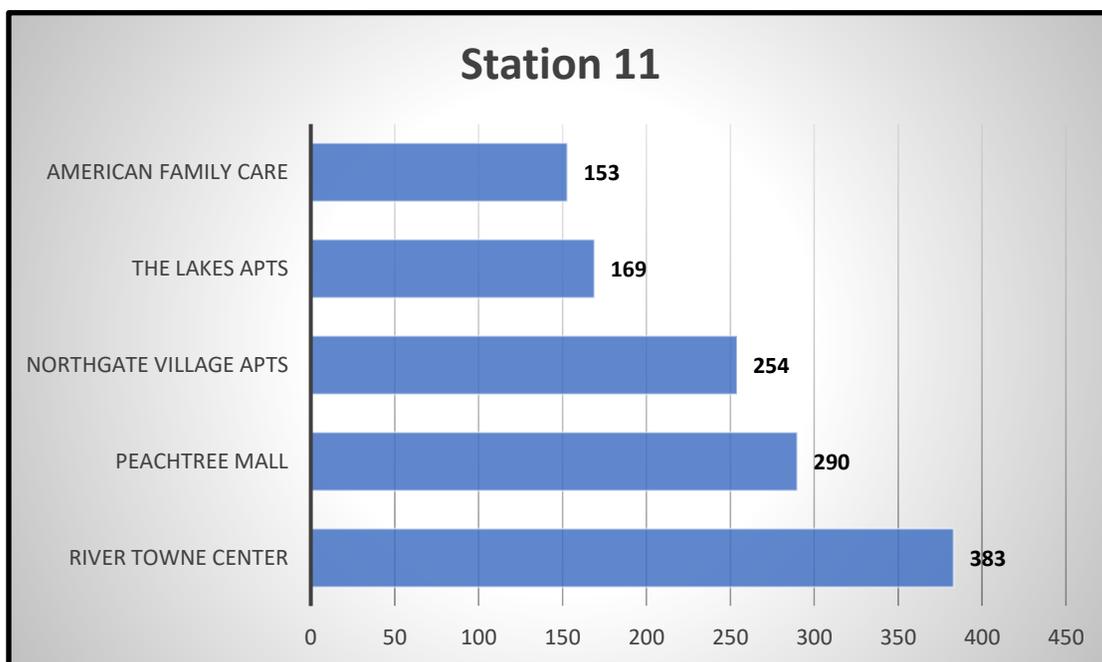
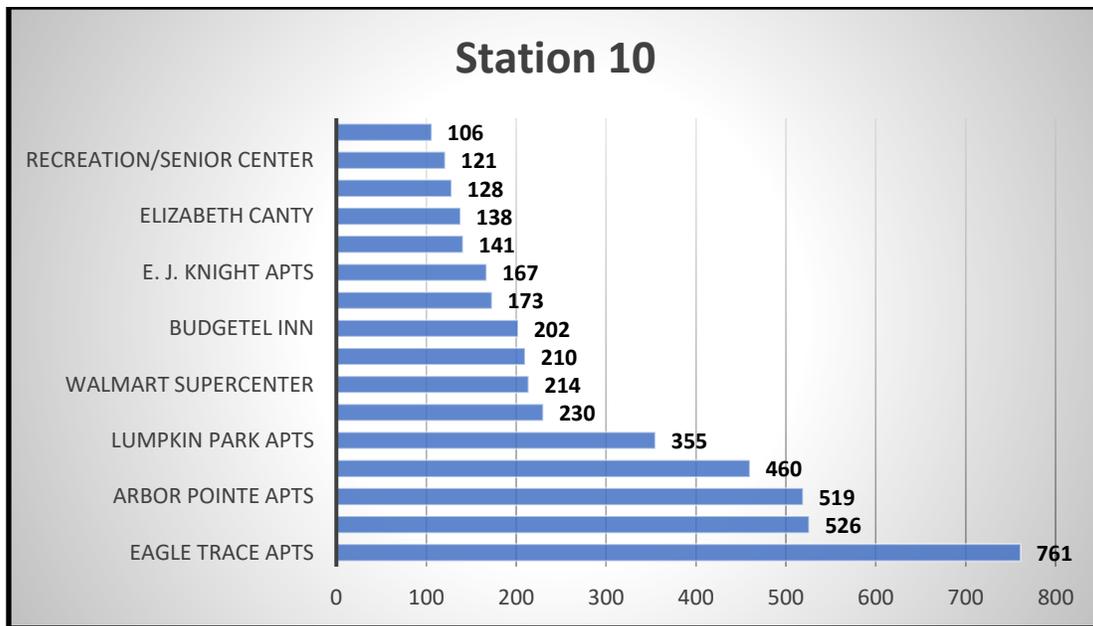
NUMBER AND FREQUENCY OF CALLS PER STATION

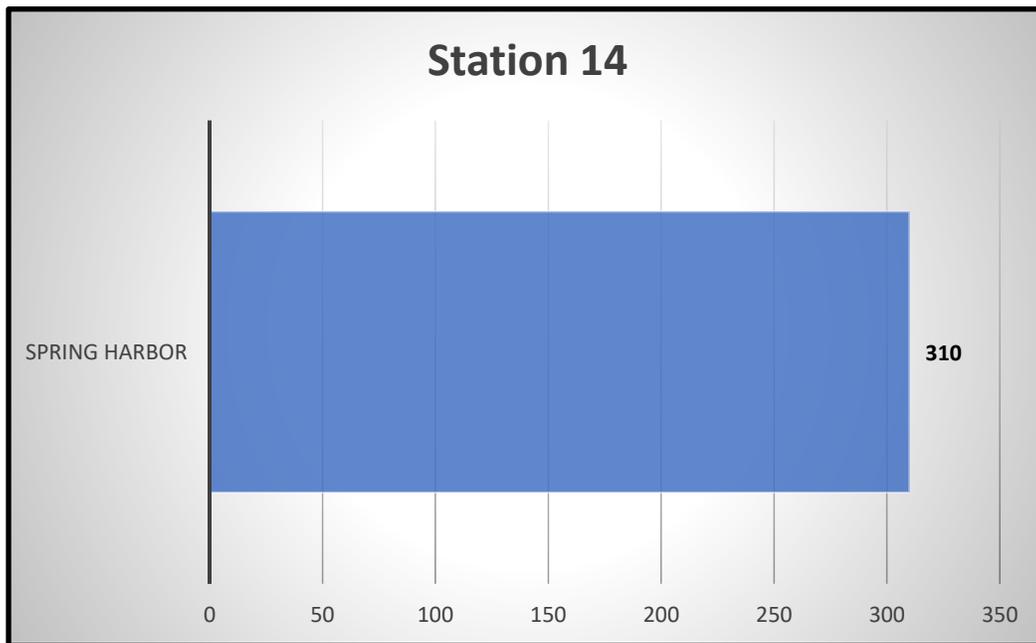
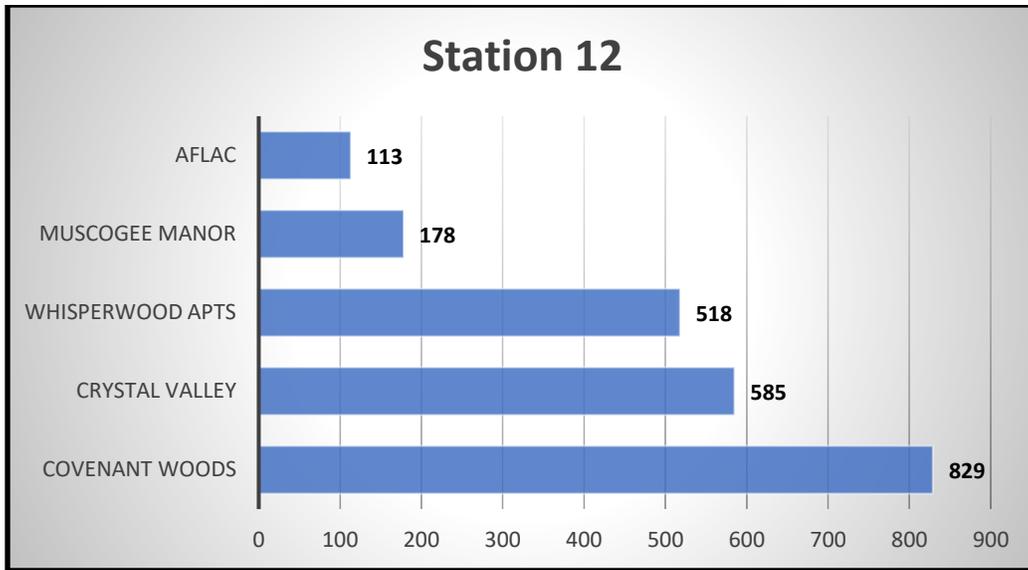






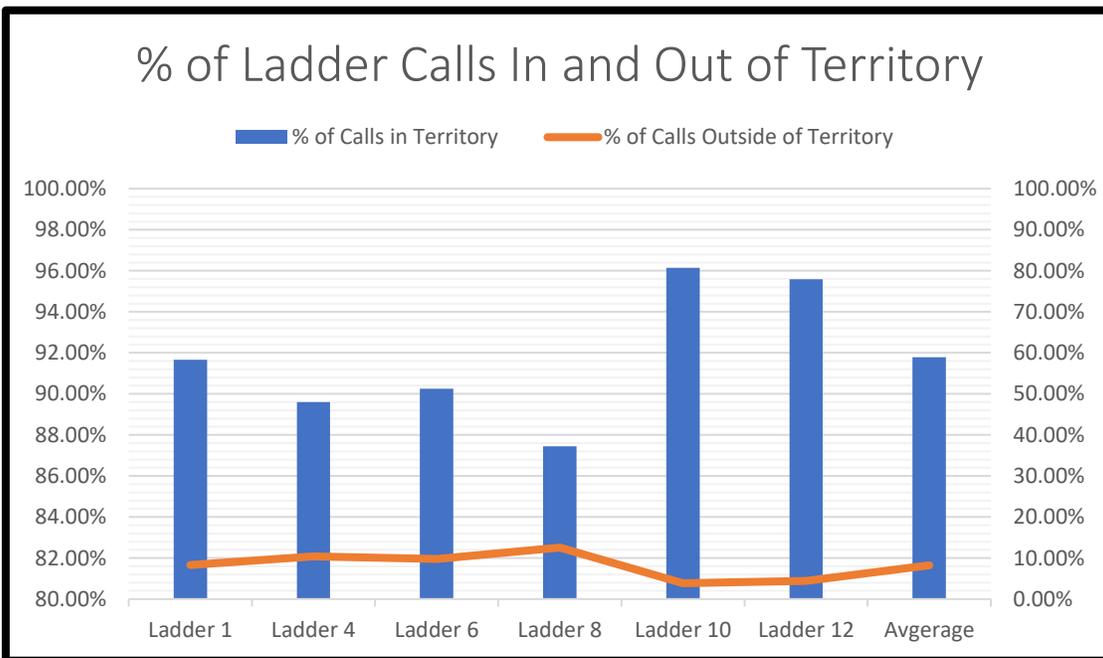
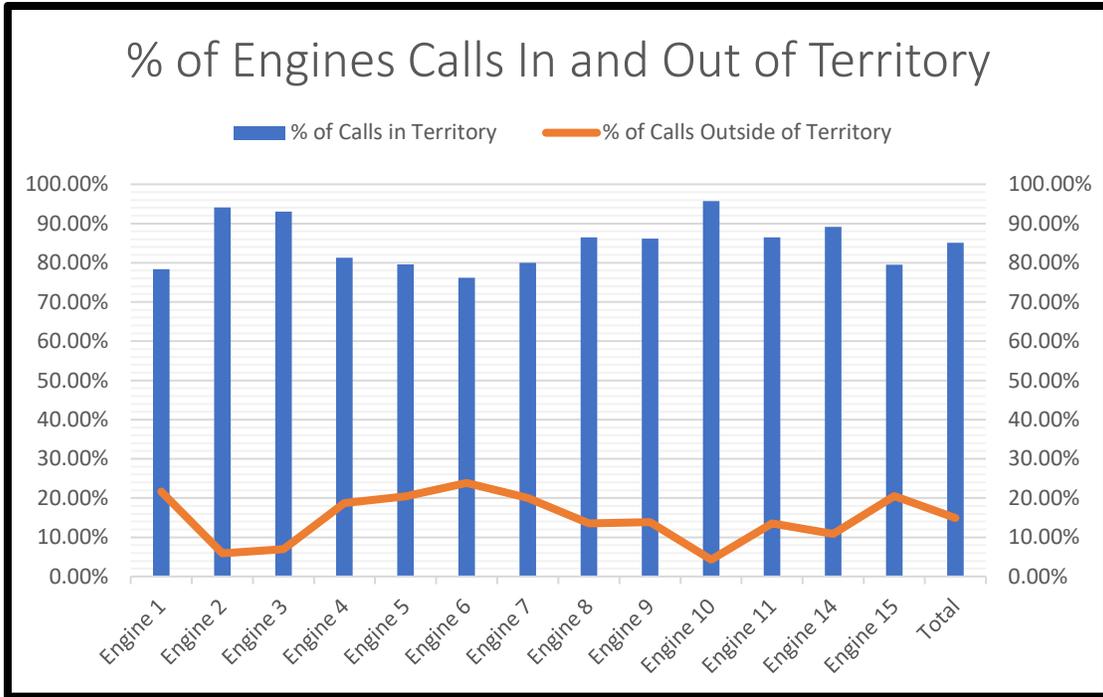






RELIABILITY

Response reliability is the probability that the unit assigned to a territory will be available to respond in that territory. Is the unit available to respond in its territory? As the number of calls increases, and the demand on crews increase the reliability decreases. Response reliability is reflected as a percentage. In 2019, 82.33% of calls were responded to by the first-due company. (Figure 5.11 Reliability)



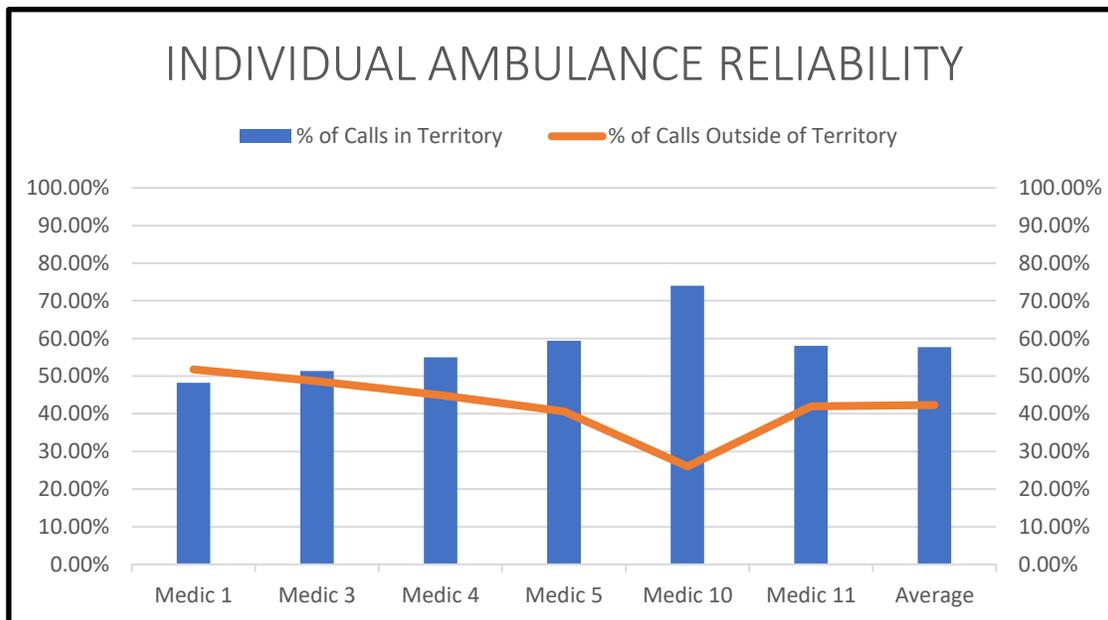
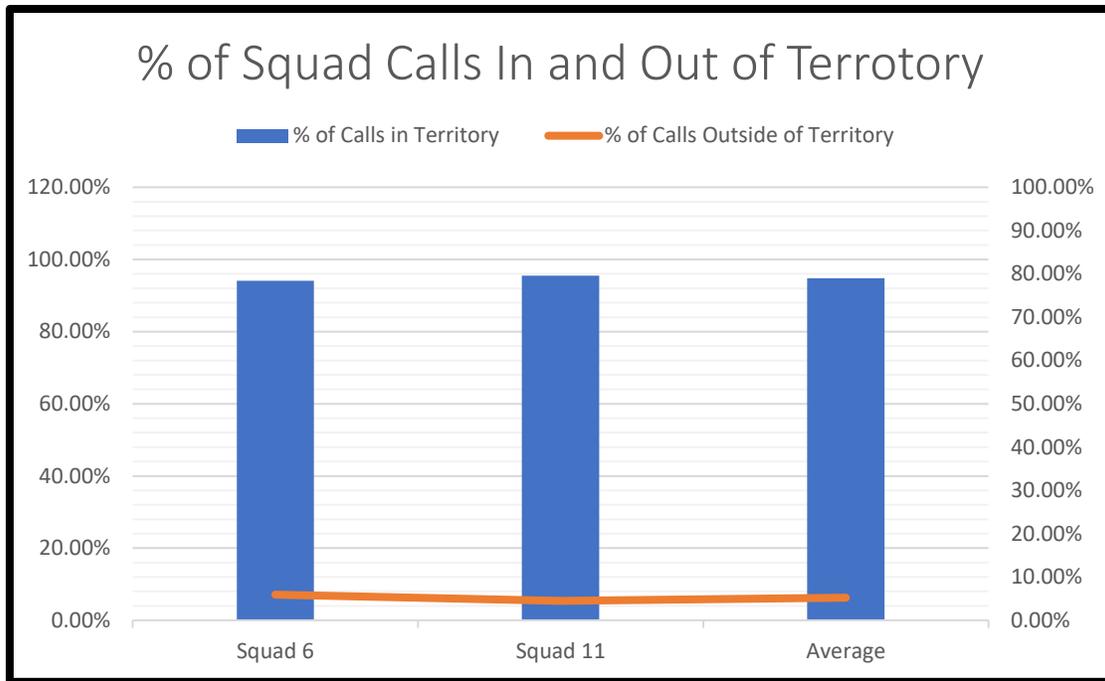


Figure 5.11 Reliability

OUT OF SERVICE

Units that are out of service directly correlate to the unit's reliability. The department has not begun to calculate out of service time (OOS). The department is working on a process that will assist the department in calculating OOS.

Due to the large coverage area, CFEMS has concurrent incidents; however, there does not appear to be an issue with multiple calls queuing.

RESILIENCY

Resiliency is assessed when the need has been identified. During times of extreme weather or multiple major incidents, CFEMS can respond units from other territories that are automatically adjusted in CAD and units are dispatched appropriately. In the event one or more emergency incidents take place during a planned training event, on-duty Battalion Chief or a Command Staff Chief has the authority to cancel training in order to get units back in service for responding to calls.

If an incident (or multiple simultaneous incidents) exceeds the capabilities of CFEMS even after utilizing mutual aid, then Georgia Mutual Aid Group (GMAG) deployment can be initiated through the Georgia Emergency Management Agency/Homeland Security (GEMA/HS). The GMAG plan is another form of mutual aid, but on a statewide level. The agreement offers assistance to member jurisdictions when local resources are depleted. The purpose of the GMAG/HS plan is to provide for the systematic mobilization, organization, and operation of fire/rescue resources from throughout the region to assist local agencies in mitigating the effect of disasters. Included in this group are representatives from Georgia Emergency Management Agency/Homeland Security, Georgia Forestry Commission, Georgia Department of Public Health, and the State Fire Marshal's Office. Although mutual aid is tracked and recorded, it is not included in CFEMS CAD data or included in unit responses in Image Trend.

MOVE-UPS

During daily operations, CFEMS utilizes a move-up procedure to back-fill certain stations effected by an incident. This procedure allows the department to maintain adequate geographic coverage during prolonged incidents. On all major incidents, an unaffected Battalion Chief is tasked with handling move-

ups. Battalion 1 covers for Battalion 3, Battalion. 2 covers for Battalion 1, and Battalion 3 covers for Battalion 2. The move-up Battalion Chief may request mutual aid during exceptionally large or complex incidents that substantially affect the department’s response capability. The move-up Battalion Chief will notify dispatch operators which crews to move where, and when to do so. When the original crew returns to service and the response area from their incident, the crew that was covering their territory will return to their assigned station.

COMPARABILITY

Comparison to industry standards is important and gives the department something for which to strive. Below is a comparison of CFEMS service delivery to ISO and NFPA 1710. In the future, CFEMS would like to formally compare the department to other “like-size” agencies and other accredited departments.

ISO

September 1, 2017, CFEMS was awarded a Public Protection Classification (PPC) of 1/1x by the Insurance Services Office. (Figure 5.12: PPC Rating)

FSRS Feature	Earned Credit	Credit Available
Emergency Communications		
414. Credit for Emergency Reporting	2.55	3
422. Credit for Telecommunications	3.99	4
432. Credit for Dispatch Circuits	3	3
440. Credit for Emergency Communications	9.54	10
Fire Department		
513. Credit for Engine Companies	6	6
523. Credit for Reserve Pumpers	0.5	0.5
532. Credit for Pump Capacity	3	3
549. Credit for Ladder Service	3.08	4
553. Credit for Reserve Ladder and Service Trucks	0.5	0.5
561. Credit for Deployment Analysis	9.57	10
571. Credit for Company Personnel	11.75	15
581. Credit for Training	8.54	9
730. Credit for Operational Considerations	2	2
590. Credit for Fire Department	44.94	50
Water Supply		
616. Credit for Supply System	29.11	30
621. Credit for Hydrants	3	3
631. Credit for Inspection and Flow Testing	7	7
640. Credit for Water Supply	39.11	40
Divergence		
	-1.58	-
1050. Community Risk Reduction	4.26	5.5
Total Credit	96.27	105.5

Figure 5.12: PPC Rating

NFPA 1710

CFEMS currently does not meet the NFPA 1710 standard. While this standard is a goal for the organization, it must be understood that reaching the standard will take a significant amount of time. In examining this, the past needs of the community should be evaluated as well as the present and the future needs.

The NFPA 1710 standard fails to take service area square miles or population density into consideration. The lack of consideration for area and population served makes meeting the standard more difficult for a city department. The cost associated with station placement alone is prohibitive.

Beginning in 2002, during the department's first accreditation process, CFEMS began analyzing data. The CFAI Accreditation process brought about a more formal need to identify gaps in coverage. Historical data was analyzed to reveal that station location should consider service demands, population density, and historical data to best determine new station locations.

The self-assessment process and the organization's shift to becoming a data-driven organization will begin to bring CFEMS more in line with the NFPA standard. The department is currently delivering service with an asset deployment plan based largely on geographical considerations and 90th percentile times. Moving forward, these considerations will drive the location of future assets to reduce CFEMS response times.

The self-assessment has revealed where the department currently is in relation to NFPA 1710 and reinforced the goal of meeting the standard. The process will take a considerable amount of time.

CRITICAL TASKS

On-scene operations, critical tasking, and an ERF are the elements of a standard of cover analysis that aid in determining appropriate staffing levels, number of units needed, deployment strategies, and duties to be performed at an incident. A department must be able to determine what tasks should be completed to have a positive influence on the outcome of the situation and define the number of personnel and apparatus required to complete those tasks in an effective manner. Because each emergency scene is different, and the order of activities undertaken to achieve objectives may vary depending on the

immediate needs. The variables of the scene should be assessed upon arrival to determine where the resources available can be most effectively used to meet our primary objectives, which are:

1. Life Safety (Occupants, emergency workers, bystanders, etc.)
2. Incident Stabilization
3. Property Conservation

CFEMS defines critical tasks for fire, EMS, technical rescue, and HazMat. A minimum number of personnel must be identified to initiate all tasks required, and an incident commander must be on-scene to assign the specific tasks. CFEMS critical tasks are not pre-assigned based on unit designation (e.g.: ladder trucks are not always assigned the task of ventilation); however, the incident commander takes into consideration the type of unit and equipment available before assigning a specific task to a crew.

All personnel have the training required to perform the specific tasks assigned. Assigning tasks to crews rather than to individuals maintains crew integrity and thereby increases firefighter safety, efficiency, and accountability.

STRUCTURE FIRES

On-scene operations, critical tasking, and an ERF are the elements of the SOC that aid in the determination of appropriate staffing levels, number of units/companies needed, optimal deployment strategies, and duties to be performed on the fire ground or emergency incident scene. A department must be able to determine what tasks need to be completed to have a positive influence on the outcome of the situation, as well as the number of personnel and apparatus required to complete those tasks in an effective manner. Critical tasking for suppression activities is outlined in CFEMS Operating Guidelines for Response Standards, Volume II 02-200.

A critical task during a structure fire is one that must be conducted by firefighters in a timely manner to control the fire prior to flashover, perform rescues, or extinguish the fire. Life safety is paramount when identifying critical tasks. The National Fire Protection Agency guidelines were used to assist in identifying CFEMS critical tasks. The 2-in/2-out standard was also used to identify critical tasks on the fire ground. The standard requires firefighters to go into a fire with at least one other firefighter and not leave without them. The 2-in/2-out also ensures the safety of those entering the structure by requiring personnel to remain outside and to function as a firefighter rescue team. This means that when crews are

working in a hazardous environment, they will have in place a Rapid Intervention Team (RIT) after the arrival of the effective response force.

The tasks assigned to each unit are based on the priority presented when units arrive on scene.

1. Rescue Mode – victims in immediate need of rescue.
2. Fast Attack Mode – actions of the first in engine can make a significant positive outcome on the incident (incipient stage fires or small single room fires).
3. Command mode – Immediate actions of one unit will not significantly affect the outcome of the incident and the critical tasks are assigned based on priority and unit arrival.

During rescue mode and fast attack mode the entire crew of the first in company engages in tactical operations and passes command to the next due unit. Both modes usually last only several minutes and end when the situation is stabilized, command is assumed by the next due unit, or command is transferred to a chief officer.

STRUCTURE FIRE CRITICAL TASK ASSIGNMENTS

Incident Command (IC) (1)– Command is established by an officer or acting officer assigned to remain outside of the structure to develop size-up and evaluate primary factors. Primary factors include life hazards for occupants and firefighters, location of fire, construction, area and height, occupancy/contents, exposures, time of day, auxiliary appliances, weather, apparatus/personnel, water supply, and special matters. The IC will assign critical tasks based on seven common strategic goals; Rescue, exposure, confinement, extinguishment, ventilation, salvage and overhaul. IC will be transferred to the second arriving engine/ladder if initial command was not established from a fixed position.

Personnel Accountability Officer (1)

CFEMS utilizes four forms of accountability, Level I, II, III and Level IV.

A. Level I Accountability:

1. Personnel turn in their Personnel Accountability Tag (PAT) to their company officer at the start of their shift. The officer attaches the PAT's to the Apparatus Collector Ring.
2. Level I is in place when all present crewmembers' PAT's are on the Apparatus Collector Ring.
3. Columbus Fire and Emergency Medical Services will maintain Level I Accountability at all times.

B. Level II Accountability:

1. Any time during the course of an emergency the Incident Commander has the option to direct units to account for personnel operating at the emergency by means of PAT's and Collector Rings.
2. The Incident Commander will direct all Collector Rings to be brought to the Command Post.
3. The Company Commander or his/her designee will secure the unit collector ring and take it to the Command Post.
4. Administrative staff personnel that respond to an emergency incident where the Incident Commander has directed Level II accountability or greater shall report to the command post to have their Yellow or Silver PAT collected and logged in on the Accountability Chart.
5. The designated Accountability Control Officer will organize and log Collector Rings and PAT's utilizing an Accountability Control Chart and the command assignment board.

C Level III Accountability:

1. When the Incident Commander determines that the incident requires extremely stringent accountability, he will implement Point of Entry, (i.e., Hazardous Materials Zones, large commercial structures).
2. To implement Points of Entry Control, the Incident Commander will designate officer(s) to monitor all points of entry into the hazard zones, structures, confined space, etc. These officers will coordinate closely with the Safety Officer. The designated radio call sign will be "Entry Control".
3. "Entry Control" will ensure that each entering member's White or Black PAT is collected and the time of entry and assignment are recorded on the Entry Control Chart.
4. When members exit a control point their time out shall be logged on the Entry Control Chart and their PAT will be returned to be placed back onto their turn out coat. Members that exit via a remote-control point shall inform Entry Control of their exit.

D Level IV Accountability:

1. Any time during an incident the Incident Commander has the option/responsibility to initiate a Personnel Accountability Report (PAR). Accountability Report Benchmarks would include but not be limited to:
 - a. Any report of a missing or trapped firefighter.
 - b. A change from offensive to defensive mode during the incident.
 - c. Any sudden hazardous event; flashover, back draft, collapse, eminent BLEVE, expansion of the hazard/hot zones, etc.
 - d. Rescue Teams reporting an all clear.

- e. At the report that the fire is under control.
2. The Incident Commander can initiate a PAR by means of:
 - a. A radio command to all on scene units to respond PAR to command.
 - b. A face-to-face command via the Safety or designated Accountability Officer.
 - c. Initiating a "**CODE RED**" **all personnel shall exit the building when signaled by a 30 second blast of apparatus air horns.**
 - d. Initiating a "**Mayday**" a universal signal for someone in distress.
3. Upon Commands, Initiation of a PAR:
 - a. All personnel/crews will immediately report to their assigned apparatus. 4
 - b. Companies whose engine has reversed lines to distant hydrants will report to a unit of close proximity to their working group.
 - c. Company Officers - by means of Collector Rings and PATs will account for all their personnel and report a PAR to Command (i.e., "Command, from Engine 6, I have a PAR" [all members present]).

Incident Safety Officer (ISO) (1) – The designation of the incident safety officer will be held by staff at the rank of Lieutenant or higher. The ISO should be certified by either a national or CFEMS certification program. The ISO will follow the "Incident Safety Officer" guideline as established by the CFEMS SOG:02-204. In the typical arrival of apparatus, the arriving Squad Truck will be designated as the rapid intervention team with the officer becoming the ISO. The ISO has the direct responsibility to focus solely on all safety aspects of the incident.

Pump Operator (1) – One engineer/driver or acting engineer/driver is designated as the pump operator. In a typical response, the 1st in engine will supply the Pump Operator. The pump operator will operate the pump, participate in establishing water supply, provide necessary lighting, and make necessary equipment accessible.

Water Supply (1) – If the pump operator is unable to establish a permanent water supply, the engineer/driver of the 2nd arriving engine is designated as water supply. Water supply will establish a permanent water supply to the Pump Operator.

Attack Line (2) – A minimum of two firefighters is designated as fire attack and is assigned to the attack line. An attack line is a 1 ¾" hose that produces 100-150 GPM usually handled by a minimum of two firefighters. Each CFEMS engine carries two attack lines pre-connected to the pump. Hose selection is dependent upon the type of structure involved, distance to the seat of the fire, and the stage of the fire.

Back-Up Line (2) – A minimum of two firefighters are designated as Fire Attack and are assigned to the back-up line. A back-up line is usually a 1 ¾” hand line (the same size as the initial attack line) that is taken in behind the attack crew to provide cover in case the fire overwhelms them, or a problem develops with the attack line.

Search and Rescue (SAR) (2) – A minimum of two firefighters are assigned to search for and remove victim(s). SAR is coordinated with fire attack on the Attack Line with life safety as priority. A two-person SAR crew is normally sufficient for most moderate/low risk structures, but additional crews are needed in multi-story buildings or structures with people who are not capable of self-preservation.

Ventilation Crew (2) – A minimum of two firefighters are assigned to the ventilation crew and given the designation of Ventilation. Ventilation removes super-heated gases and obscuring smoke, thereby preventing flashover and allowing attack crews to see and work closer to the seat of the fire. It also gives the fire an exit route so that attack crews can push the fire out the opening they choose and keep it from endangering people or property. Ventilation is coordinated with Fire Attack and Incident Command.

Rapid Intervention Team (2) - A Rapid Intervention Team (RIT) should consist of a minimum of two (2) firefighters, assembled on the scene, whose primary assignment is planning and carrying out actions necessary for the rescue of fire personnel. More than one RIT may be necessary for large incidents or large scale training exercises.

LOW RISK FIRE INCIDENT

For a Low Risk Fire incident, the total personnel needed for an effective response force is 3 personnel. A Low Risk fire incident (vehicle, dumpster, grass, etc.) dispatch compliment is either 1 engine (4) or 1 ladder truck (3). An effective response force arrives when the unit arrives on the scene.

Low Risk Fire Incident (vehicle, dumpster, grass, etc.)	
Critical Task	Minimum Personnel
Size up and 360 walk around completion, command	1
Pump operator	1
Initial attack line (1 ¾ line minimum with 150 GPM capabilities)	1

MODERATE RISK FIRE INCIDENT

For a Moderate Risk Fire Incident (Residential Structure Fire), the total personnel needed for an effective response force is 16 personnel. A Residential structure fire dispatch compliment of at least: 2 engines (8), 1 Squad (4), 1 ladder truck (3), 1 battalion chief (1). An effective response force arrives when both engines, the squad truck, ladder truck and battalion chief arrives on the scene. When all units are on scene, 16 personnel are available for assignment.

Moderate Risk Fire Incident (Single Family Residence < 2,500 sq. ft.)	
Critical Task	Minimum Personnel
Size up and 360 walk around completion, command	1
Pump operator	1
Initial attack line (1 ¾ line minimum with 150 GPM capabilities)	3
Water Supply (dual 3” lines or 5” supply lines from permanent water supply)	1
Safety officer (Lt. or higher certified incident safety officer)	1
Back up line (same size line or higher of initial attack line)	3
Search and Rescue	2
Ventilation Operations	2
Rapid intervention team (RIT)	2

HIGH RISK FIRE INCIDENT

For a High Risk Fire incident (Commercial Building Fire), the total personnel needed for an effective response force is at least 20 personnel. A Commercial Building fire dispatch compliment is: 3 engines (12), 1 squad (4), 1 ladder trucks (3), 1 battalion chief (1). An effective response force arrives when all units are on scene 20 personnel are available for assignment.

High Risk Fire Incident (Commercial Structures)	
Critical Task	Minimum Personnel
Size up and 360 walk around completion, command	1
Pump operator	1
Initial attack line (1 ¾ line minimum with 150 GPM capabilities)	3
Second attack line (1 ¾ line minimum with 150 GPM capabilities)	3
Water Supply (dual 3” lines or 5” supply lines from permanent water supply)	1
Safety officer (Lt. or higher incident safety officer)	1

Back up line (same size line or higher of initial attack line)	2
Search and Rescue	2
Rapid intervention team (RIT)	4
Ventilation Operations	2

VERY HIGH RISK FIRE INCIDENT

For a Very High Risk Fire Incident (**High Risk Occupancy**), the total personnel needed for an effective response force is at least 28 personnel. A High Density Occupancy fire dispatch compliment is: 4 engines (16), 2 ladder trucks (6), 2 battalion chief's cars (2), and 1 squad truck (4). An effective response force arrives when all units are on scene 28 personnel are available for assignment.

Very High Risk Fire Incident (High Density Occupancy)	
Critical Task	Minimum Personnel
Size up and 360 walk around completion, command	1
Pump operator	2
Initial attack line (1 ¾ line minimum with 150 GPM capabilities)	3
Second attack line (1 ¾ line minimum with 150 GPM capabilities)	2
Water Supply (dual 3" lines or 5" supply lines from permanent water supply)	2
Safety officer (Lt. or higher incident safety officer)	1
Back up line (same size line or higher of initial attack line)	2
Sector Lobby Control Officer	1
Base Control Officer	1
Accountability officer	1
2 nd Battalion Chief	1
Search and Rescue	2
Staging Officer	1
Rapid intervention team (RIT I and RIT II)	5
Ventilation Operations	3

EMS CRITICAL TASKS

CFEMS responds to an average 28,613 EMS calls per year or approximately 78 calls per day. The calls are of a wide variety including sick calls, motor vehicle accidents, childbirths, difficulty breathing, and cardiac arrests. In Columbus, ambulances and fire apparatus respond to all basic and advanced life support (ALS) calls.

As with fire, EMS calls are planned for by assuming worst-case scenario – a patient in cardiac arrest. The American Heart Association (AHA) recommends a minimum of two emergency medical technicians and two certified paramedics to adequately manage an emergency cardiac scene. A cardiac arrest is classified as an ALS call, and all ALS calls have the closest fire apparatus and one ambulance dispatched. All ALS calls involving a motor vehicle crash (MVC) with possible entrapment have a ladder truck dispatched with extrication equipment, additional ambulance and a battalion chief. Based on CFEMS minimum staffing, a typical ALS call would provide a minimum of five personnel to manage the call.

EMS Critical Tasks BLS Response (Non-Life-Threatening Events)	
Critical Task	Minimum Personnel
Dispatched ambulance (Provide ALS services and transport)	2

EMS Critical Tasks ALS Response (Cardiac, Stroke, or Trauma)	
Critical Task	Minimum Personnel
Closest fire apparatus (Provide ALS/BLS services)	3
Dispatched ambulance (Provide ALS services and transport)	2

LOW VOLUME MULTI-UNIT

CFEMS responds to a multitude of incidents other than fires or EMS. These include HAZMAT calls, Technical Rescue, severe weather and natural disasters, and service calls. While individually these calls do not occur in large numbers, as a total they do represent a substantial amount of calls. CFEMS uses the National Fire Service Incident Management System (NIMS) as a model for management of emergency scenes. NIMS is a guide for any emergency incident that does not have a specific CFEMS guideline. Implementing the NIMS model prevents the dangerous scenario of free-lance operations and allows for unity of command with an effective span of control.

HAZMAT Critical Tasks

Critical tasks for the CFEMS hazardous material team are impossible to define because the nature of assets needed are not determined until the arrival of the first-arriving fire officer. Action taken can differ

substantially based on the type of incident involved. There are various levels of personal protection as well as different mitigation tactics. There are also incidents that may only require an operations level trained response engine.

Response is the portion of incident management in which personnel are involved in controlling a hazardous materials incident defensively or offensively. The activities in the response portion of hazardous materials incident include:

- (a) Analyzing the incident
- (b) Planning the response
- (c) Implementing the planned response
- (d) Evaluating the process

Hazmat Operations

Hazmat Operations Critical Tasks	
Critical Task	Minimum Personnel
FIRST ENGINE- Officer assumes command; size up; initial incident safety officer; notify and call for resources. Isolate site and deny entry (decon and resources as needed)	3
FIRST AMBULANCE- Medical team; pre-entry & post-entry vitals	2
HAZMAT TRUCK- Field safety officer (hazmat tech qualified), Entry team, Back up team	3
FIRST LADDER TRUCK- Decon Setup	3
SECOND ENGINE- Decon team	3
BATTALION CHIEF- Receives command, provides continual size up	1

TECHNICAL RESCUE CRITICAL TASKS

Critical tasks for the Technical Rescue Team are impossible to define because the nature of assets that are needed are not determined until the arrival of the first-arriving fire officer. Depending on the incident, other assets may be sent non-emergency. The goal of the Technical Rescue team is to recognize and identify the need for Technical Rescue services involving incidents such as structural collapse, trench collapse, complicated or advanced vehicle/machinery extrication, confined space rescue, rope rescue, etc. They perform rescue or incident stabilization as necessary to accomplish life safety and property conservation. In cases of very large events such as a large life hazard structural collapse,

perform initial steps toward incident mitigation to involve size-up, requesting additional Technical Rescue services, performing rescue, shoring, and other steps toward incident stabilization until additional resources arrive to assist.

Water Rescue

Water Rescue Critical Tasks	
Critical Task	Minimum Personnel
ENGINE- Officer assumes command; size up; initial incident safety officer	3
FIRST AMBULANCE- Medical team	2
LADDER TRUCK- Entry team supervisor, Back up team supervisor, Back up team	3
SECOND AMBULANCE- Surface Support	2
BATTALION CHIEF- Receives command, provides continual size up	1

Vehicle Extrication

Vehicle Extrication Critical Tasks	
Critical Task	Minimum Personnel
ENGINE- Officer assumes command; size up; initial incident safety officer	3
FIRST AMBULANCE- Initiate patient care	2
LADDER TRUCK- Perform Extrication	3
SECOND AMBULANCE- Lifting, equipment shuttle	2
BATTALION CHIEF- Receives command, provides continual size up	1

Technical Rescue

Technical Rescue Critical Tasks	
Critical Task	Minimum Personnel
FIRST ENGINE- Officer assumes command; size up; initial incident safety officer, Set up	3
AMBULANCE- Medical	2
LADDER TRUCK- Rescue supervisor, Safety officer, Set up anchors/main line/belay line	3
SECOND ENGINE- Line attendant/edge monitoring, Rigging/rope/entry team plus tenders	3
SECOND AMBULANCE- Lifting, equipment shuttle	2
BATTALION CHIEF- Receives command, provides continual size up	1

TIME COMPONENTS

In Columbus, the vast majority of calls originate from the Columbus 911 Center, which serves as the public safety answering point (PSAP) for Columbus.

CFEMS measures alarm handling (processing), turnout, travel, and total response time.

- Alarm handling/processing - begins after the dispatcher has received the call and has completed dispatching units.
- Turnout - begins when a unit receives notification of the emergency and ends when the unit is enroute to the emergency incident (the unit's wheels begin to roll). The maximum time for turnout should not exceed the benchmark of 80 seconds for fire and 60 seconds for medical alarms.
- Travel - begins when a unit is enroute to the emergency incident (the unit's wheels begin to roll and 911 is notified that the unit is responding) and ends when the unit arrives on the scene.
- Total response - is the sum of all the time components (Alarm handling +Turnout + Travel) Time begins when 911 receives notification of the emergency and ends when the unit(s) arrive(s) on the scene.

The special service-level objectives in the benchmark statements are based on industry standards, best practices, and the needs of the department. The objectives area approved and adopted by department management with the full support of the Mayor, City Manager and City Council.

RESPONSE TIME PERFORMANCE

Columbus is mainly urban with regard to population density and some small areas of rural densities.

CFEMS utilizes fractal measurements to measure performance. Using the 90th percentile more accurately describes response times over a broad geographical area. The 90th percentile measures how often a unit can reach a particular area of their response district. For the purpose of Accreditation, CFEMS utilizes the 90th percentile to measure response times.

Averages are not utilized, although easily obtained, can sometimes be misleading. Since an “average” is the sum of all the values in a data set divided by the number of values in the set, it only takes a few

incidents with an extended response time to skew the average. Therefore, an average does not adequately reflect the response times achieved the majority of the time.

Prior to establishing baseline performance, the data needs to be cleaned to remove statistical outliers. CFEMS removes non-emergency responses, exposures, mutual-aid responses, and response times with a NULL value. CFEMS does not rely on mutual-aid to complete the ERF.

Outliers in the data set are examined to monitor the changes we implement concerning quality control. Outliers are used in identifying and analyzing possible problem areas.

Several factors affect response times that are beyond the control of responders and dispatchers. When responding to reported structure fires all units respond in emergency mode.

BENCHMARKING

Establishing a benchmark offers the agency a figurative “Special” to aim for. Below are CFEMS benchmark response-time objectives for each level of service. CFEMS considers the area served as an urban community. All response time benchmarks are for an urban population density.

FIRE

The Department’s benchmark service-level objectives are as follows:

Benchmark

For 90% of all Low-Risk Fire incidents, the total response time for the arrival of the 1st Unit shall be 6 minutes and 30 seconds. The first arriving Engine shall be capable of: providing a minimum of 3 personnel, providing 1500 GPM and a static water source (tank water) of 750 gallons; initiating command and providing for incident safety; requesting additional resources; deploying 200’ of 1 ¾” hose-line while flowing a minimum of 150 GPM; establishing an uninterrupted water supply as needed; containing the fire; performing salvage and overhaul operations; conduct a fire cause determination, and produced related documentation.

For 90% of all moderate risk structure fires, the total response time for the arrival of the first-due unit, staffed with a minimum of 3 fire personnel, shall be 6 minutes and 30 seconds. The first due unit shall be capable of but not required to simultaneously perform the following tasks: providing 1500 GPM and a static water source of 750 gallons initiating command; requesting additional resources; establishing and advancing an attack line flowing a minimum of 150 GPM; establishing an uninterrupted water supply; containing the fire; rescuing at-risk victims; and performing salvage operations. It is understood that the first due unit has the responsibility to conduct a proper size up and may delegate the other task to other arriving equipment. These operations shall be done in accordance with departmental standard operating guide lines while providing for the safety of responders and the general public.

For 90% of all moderate risk structure fires, the total response time for the arrival of the ERF of sixteen personnel is 10 minutes and 30 seconds. The ERF for moderate risk shall be capable of: Establishment of incident command outside of the hazard area for the overall coordination and direction of the initial full alarm assignment with a minimum of one member dedicated to this task. Establishment of an uninterrupted water supply of a minimum of 400 GPM for 30 minutes with supply lines maintained by the driver/operator. Establishment of an effective water flow application rate of 300 GPM from two hand-lines, each of which has a minimum flow rate of 150 GPM with each hand-line operated by a minimum of two members, provision of at least one team, consisting of a minimum of two members to raise ground ladders and perform ventilation, establishment of a rapid intervention team consisting of a minimum of two members and if an aerial device is used in operations one member to function as an aerial operator to maintain primary control of the aerial device at all times.

For 90% of all high risk structure fires, the total response time for the arrival of the first-due unit, staffed with a minimum of three firefighters, shall be 6 minutes and 30 seconds. The first due unit for all risk levels is capable of: providing 750 gallons of tank water and 1,500 GPM pumping capacity; initiating command; requesting additional resources; establishing and advancing an attack line flowing a minimum of 150 GPM; establishing an uninterrupted water supply; containing the fire; rescuing at-risk victims; and performing salvage operations. These operations are done in accordance with departmental standard operating guidelines while providing for the safety of responders and the general public.

For 90% of all high risk_structure fires, the total response time for the arrival of the ERF, staffed with twenty personnel shall be 13 minutes and 30 seconds. The ERF for high risk structure fires shall be capable of: Establishment of incident command outside of the hazard area for the overall coordination, direction, and safety of the initial full alarm assignment with a minimum of two members dedicated to managing this task, establishment of two uninterrupted water supply lines at a minimum of 400 GPM, with an operator, establishment of an effective water flow application rate of 300 GPM from three hand-lines each which has a minimum flow rate of 150 GPM with each hand-line operated by a minimum of two members to effectively and safely maintain each hand-line, provision for one support member for each attack back-up and exposure line deployed to provide hydrant hookup and to assist in laying of hose lines utility control and forcible entry, provision of at least two victim search-and-rescue teams each consisting of a minimum of two members, provision of at least two teams each team consisting of a minimum of two members to raise ground ladders and perform ventilation, establishment of a rapid intervention team with a minimum of two members, if an aerial device is used in operations one member to function as an aerial operator and maintain primary control of the aerial at all times.

For 90% of all very high risk structure fires, the total response time for the arrival of the first-due unit, staffed with a minimum of three firefighters, shall be 6 minutes and 30 seconds. The first due unit for all risk levels is capable of: providing 750 gallons of tank water and 1,500 GPM pumping capacity; initiating command; requesting additional resources; establishing and advancing an attack line flowing a minimum of 150 GPM; establishing an uninterrupted water supply; containing the fire; rescuing at-risk victims; and performing salvage operations. These operations are done in accordance with departmental standard operating guidelines while providing for the safety of responders and the general public.

For 90% of all very high risk_structure fires, the total response time for the arrival of the ERF, staffed with twenty eight personnel shall be 15 minutes and 30 seconds. The ERF for very high risk structure fires shall be capable of: Establishment of incident command outside of the hazard area for the overall coordination, direction, and safety of the initial full alarm assignment with a minimum of two members dedicated to managing this task, establishment of two uninterrupted water supply lines at a minimum of 400 GPM, with an operator, establishment of an effective water flow application rate of 300 GPM from three hand-lines each which has a minimum flow rate of 150 GPM with each hand-line operated by a

minimum of two members to effectively and safely maintain each hand-line, provision for one support member for each attack back-up and exposure line deployed to provide hydrant hookup and to assist in laying of hose lines utility control and forcible entry, provision of at least two victim search-and-rescue teams each consisting of a minimum of two members, provision of at least two teams each team consisting of a minimum of two members to raise ground ladders and perform ventilation, establishment of a rapid intervention team with a minimum of two members, if an aerial device is used in operations one member to function as an aerial operator and maintain primary control of the aerial at all times.

EMERGENCY MEDICAL SERVICES

Advanced Life Support (ALS)" means the assessment, and if necessary, treatment or transportation by ambulance, utilizing medically necessary supplies and equipment provided by at least one individual licensed above the level of emergency medical technician. Basic Life Support (BLS)" means treatment or transportation by ground ambulance vehicle or treatment with medically necessary supplies and services involving non-invasive life support measures. Medical First Responder Service means an agency or company duly licensed by the department that provides on-site care until the arrival of the department's designated ambulance provider. Thirteen engines, six ladder trucks, and two squad trucks are staffed with a paramedic if staffing permits, if not they are all basic life support (BLS) first responders. The engines are staffed with 4 personnel (SOG 02-200 Response Guideline), ladder trucks are staffed with 3 personnel (except ladder 12 it is staffed with 4 personnel), and the squad trucks are staffed with 4 personnel. There are twelve advanced life support (ALS) ambulances (six city and six private), one peak load ALS ambulance (12 hours) and one ALS engine to provide ALS response. The ALS ambulances are staffed with a minimum of two personnel, one of which must be a paramedic. The ALS engines are staffed with minimum of four personnel, one of which must be a paramedic.

The department contracts with three third-party providers to supplement EMS coverage for the city. The ambulance providers are required to meet response time criteria for 90% of all dispatches. The initial arriving unit shall have the capabilities of providing first responder medical aid including automatic external defibrillation, until the ambulance arrives on scene. If the ambulance arrives on scene first, its personnel shall initiate care and the staff from the initial fire apparatus shall provide support as needed.

For 90% of all low risk BLS EMS response incidents, the total response time for the arrival of the 1st unit staffed with a minimum of two personnel, shall be 6 minutes and 00 seconds. The first due BLS unit shall be capable of: providing incident; completing patient assessment; providing appropriate treatment; performing automatic external defibrillator (AED); initiating cardio-pulmonary resuscitation (CPR); and providing intravenous (IV) access-medication administration. For BLS incidents, the first due unit also serves as the ERF.

For 90% of all moderate risk ALS EMS response incidents, the total response time for the arrival of the 1st Unit shall be 6 minutes and 00 seconds. The first-due unit shall be capable of: providing incident command and producing related documentation; completing patient assessment; providing appropriate treatment; performing AED; initiating CPR; and providing IV access medication administration.

For 90% of all ALS EMS response incidents, the total response time for the arrival of the ERF, staffed with a minimum of 4 firefighters and officers, shall be 10 minutes and 00 seconds. The ERF shall be capable of: providing incident command and producing related documentation; completing patient assessment; providing appropriate treatment; performing manual external defibrillation; initiating CPR; and providing IV access and medication administration.

HAZMAT

For 90% of responses to low risk HazMat incidents, the total response time for the first unit, staffed with a minimum of 3 personnel shall be: 6 minutes and 30 seconds. The first arriving Hazmat unit HMRT shall be capable of assessing safe entry routes to the incident, identifying a defensive perimeter and an operational area, staging area, and defensive operations.

For 90% of all moderate risk Hazmat incidents, the total response time for the arrival of the first-due unit, staffed with a minimum of three fire personnel, shall be 6 minutes and 30 seconds. The first due unit shall be capable of but not required to simultaneously perform the following tasks: be able to implement command and control operations that include a preliminary identification of the substance in accordance with the 15 SOG's in Section 3 of CFEMS Standards Operating Guidelines.

For 90% of all moderate risk Hazmat incidents, the total response time for the arrival of the ERF of eighteen personnel is 10 minutes and 30 seconds. The ERF for moderate risk shall be capable of: be

able to implement command and control operations in accordance with the 15 SOG's in Section 3 of CFEMS Standards Operating Guidelines.

High Risk – All units at station 6 must respond

Very High Risk –High risk plus calling in an off-duty shift of hazmat members

A slower response standard is necessary to account for travel time to distant portions of the county as well as non-emergency responses to some incidents.

High and very high level responses are rarely if ever utilized. The majority of the hazardous materials incidents in the city can be mitigated with an Operations level response unit.

TECHNICAL RESCUE

For 90% of responses to moderate risk rescue incidents (vehicle extrication), the total response time for the first unit, staffed with a minimum of 3 personnel shall be: 6 minutes and 30 seconds. The first arriving unit will determine if rescue equipment is needed and request a rescue unit with the proper equipment. The first arriving unit shall establish command and control to determine the need for rope rescue equipment as outlined in SOG 03-316 through 03-325.

The technical rescue team (vehicle extrication) with an effective response force (EFR) twelve firefighters and officers shall arrive on scene shall be 10 minutes and 30 seconds, total response time 90 percent of the time and be able to implement command and control operations which include establishing a safety zone, incident command as outlined in SOG 03-316 through 03-325.

For 90% of responses to high risk rescue incidents (swift water), the total response time for the first unit, staffed with a minimum of 3 personnel shall be: 6 minutes and 30 seconds. the first arriving unit will determine if rescue equipment is needed and request a rescue unit with the proper equipment. The first arriving unit shall establish command and control to determine the need for technical rescue equipment as outlined in SOG 03-316 through 03-325.

The technical rescue team (swift water) with an effective response force (EFR) twelve firefighters and officers shall arrive on scene shall be 12 minutes and 30 seconds, total response time 90 percent of the

time and be able to implement command and control operations which include establishing a safety zone, incident command as outlined in SOG 03-316 through 03-325.

BASELINE PERFORMANCE

Before measuring baseline emergency responses, statistical outliers were removed, as well as all non-emergency responses, mutual aid assistance, exposures, 2nd alarm times and NULL time values. Non-emergency responses are also not considered because they would have been driving with the flow of traffic for a portion of their response. Measuring mutual-aid units does not assess CFEMS capabilities. Exposures are removed. Exposure reports are generated on the same incident report as the initial incident. These incidents reflect a skewed response time. Unless otherwise noted, NULL time values are removed. These times represent an incomplete time segment. E.g.: if a unit were cancelled, the arrival time would be equal to NULL because the unit did not arrive on scene. The categories and criteria for measuring baseline performance at the 90th percentile is detailed below.

FIRE PERFORMANCE

STRUCTURE FIRES - MODERATE RISK

For 90% of all moderate risk structure fires, the total response time for the arrival of the first-due unit, staffed with a minimum of 3 fire personnel, is 7 minutes and 23 seconds. The first due unit shall be capable of but not required to simultaneously perform the following tasks: providing 1500 GPM and a static water source of 750 gallons initiating command; requesting additional resources; establishing and advancing an attack line flowing a minimum of 150 GPM; establishing an uninterrupted water supply; containing the fire; rescuing at-risk victims; and performing salvage operations. It is understood that the first due unit has the responsibility to conduct a proper size up and may delegate the other task to other arriving equipment. These operations shall be done in accordance with departmental standard operating guidelines while providing for the safety of responders and the general public.

For 90% of all moderate risk fires, the total response time for the arrival of the ERF of sixteen personnel is 16 minutes and 07 seconds. The ERF for moderate risk shall be capable of: Establishment of incident command outside of the hazard area for the overall coordination and direction of the initial full alarm assignment with a minimum of one member dedicated to this task. Establishment of an uninterrupted 5”

water supply line maintained by the driver/operator. Establishment of an effective water flow application rate of 300 GPM from two hand-lines, each of which has a minimum flow rate of 150 GPM with each hand-line operated by a minimum of two members, provision of at least one team, consisting of a minimum of two members to raise ground ladders and perform ventilation, establishment of a rapid intervention team consisting of a minimum of two members and if an aerial device is used in operations one member to function as an aerial operator to maintain primary control of the aerial device at all times.

(Moderate Risk) Fire Suppression - 90th Percentile Times - Baseline Performance			2015-2019	2019	2018	2017	2016	2015
Alarm Handling	Pick-up to Dispatch	Urban	2:28	2:50	2:07	2:26	2:27	2:33
Turnout Time	Turnout Time 1st Unit	Urban	1:56	1:48	1:24	1:26	1:37	2:17
Travel Time	Travel Time 1st Unit Distribution	Urban	5:33	4:34	5:07	5:16	5:25	4:26
	Travel Time ERF Concentration	Urban	11:34	10:57	11:34	11:16	11:40	12:25
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	7:23	5:33	8:07	7:50	8:08	7:19
			n=682	n=102	n=97	n=152	n=177	n=154
	Total Response Time ERF Concentration	Urban	16:07	14:04	16:00	14:26	16:05	17:42
			n=543	n=92	n=96	n=135	n=108	n=111

2015-2019 Moderate Risk Fire Suppression Aggregate Response Times				
1st/ERF	Urban/Rural	Baseline	Benchmark	Gap
1st Due	Urban	7:23	6:20	1:03
		n=682		
ERF	Urban	16:07	10:20	4:13
		n=543		

STRUCTURE FIRES – HIGH RISK

An effective response force (ERF) for high risk, maximum and special risk fires is not available due to the limited number of incidents (N=0).

STRUCTURE FIRES – VERY HIGH RISK

An effective response force (ERF) for high risk, maximum and special risk fires is not available due to the limited number of incidents (N=0).

EMS PERFORMANCE**ALS - MODERATE RISK**

For 90% of all moderate risk ALS EMS response incidents, the total response time for the arrival of the 1st Unit with a minimum of 2 personnel is 8 minutes and 30 seconds. The first-due ALS unit shall be capable of: providing incident command and producing related documentation; completing patient assessment; providing appropriate treatment; performing AED; initiating CPR; and providing IV access medication administration.

For 90% of all ALS EMS response incidents, the total response time for the arrival of the ERF, staffed with a minimum of five firefighters and officers, is 12 minutes and 06 seconds. The ERF shall be capable of: providing incident command and producing related documentation; completing patient assessment; providing appropriate treatment; performing manual external defibrillation; initiating CPR; and providing IV access and medication administration.

(Moderate Risk) EMS ALS- 90th Percentile Times - Baseline Performance			2015-2019	2019	2018	2017	2016	2015
Alarm Handling	Pick-up to Dispatch	Urban	2:22	2:31	2:07	2:27	2:26	2:18
Turnout Time	Turnout Time 1st Unit	Urban	1:52	1:34	1:46	1:25	1:34	2:31
Travel Time	Travel Time 1st Unit Distribution	Urban	6:00	6:04	5:54	5:29	6:16	6:08
	Travel Time ERF Concentration	Urban	9:36	9:36	9:04	8:34	10:12	9:30
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	8:30	7:57	8:01	7:57	8:51	9:08
			n=33,656	n=6241	n=6363	n=5929	n=7717	n=7406
	Total Response Time ERF Concentration	Urban	12:06	12:07	12:04	11:07	12:43	12:36
			n=33,451	n=6240	n=6252	n=5936	n=7821	n=7203

2015-2019 Moderate Risk EMS ALS Aggregate Response Times				
1st/ERF	Urban/Rural	Baseline	Benchmark	Gap
1st Due	Urban	8:30	6:20	2:10
		n=33,656		
ERF	Urban	12:06	10:20	1:46
		n=33451		

HAZMAT PERFORMANCE

HAZMAT MODERATE RISK

For 90 % of all moderate risk Hazmat incidents, the total response time for the arrival of the first-due unit, staffed with a minimum of three fire personnel, is 7 minutes and 59 seconds. The first due unit shall be capable of but not required to simultaneously perform the following tasks: be able to implement command and control operations that include a preliminary identification of the substance in accordance with the 15 SOG’s in Section 3 of CFEMS Standards Operating Guidelines.

For 90 % of all moderate risk structure fires, the total response time for the arrival of the ERF of eighteen personnel is 18 minutes and 54 seconds. The ERF for moderate risk shall be capable of: be able to implement command and control operations in accordance with the 15 SOG’s in Section 3 of CFEMS Standards Operating Guidelines.

(Moderate Risk) Hazmat- 90th Percentile Times - Baseline Performance			2015-2019	2019	2018	2017	2016	2015
Alarm Handling	Pick-up to Dispatch	Urban	2:13	2:25	2:07	03:30	N/A	02:14
Turnout Time	Turnout Time 1st Unit	Urban	2:22	2:18	:56	02:09	N/A	02:23
Travel Time	Travel Time 1st Unit Distribution	Urban	4:05	4:53	3:22	4:46	N/A	07:52
	Travel Time ERF Concentration	Urban	12:48	10:01	10:21	10:51	N/A	16:08
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	07:59	6:34	5:42	07:20	N/A	10:10
			n=14	n=6	n=5	n=4	N/A	n=4
	Total Response Time ERF Concentration	Urban	18:54	14:27	18:29	17:48	N/A	19:08
			n=14	n=6	n=5	n=4	N/A	n=4

2015-2019 Moderate Risk HazMat Aggregate Response Times				
1st/ERF	Urban/Rural	Baseline	Benchmark	Gap
1st Due	Urban	7:59	6:20	1:39
		n=14		
ERF	Urban	18:54	10:20	8:34
		n=14		

TECHNICAL RESCUE PERFORMANCE

TECHNICAL RESCUE MODERATE RISK

For 90 percent of responses to moderate risk_rescue incidents, the total response time for the first unit, staffed with a minimum of 3 personnel is: 7 minutes and 52 seconds. The first arriving unit will determine if rescue equipment is needed and request a rescue unit with the proper equipment. The first arriving unit shall establish command and control to determine the need for extrication equipment as outlined in SOG 03-318 Vehicle Extrication.

The technical rescue team with an effective response force (EFR) 12 firefighters and officers shall arrive on scene in 15 minutes and 26 seconds, total response time 90 percent of the time and be able to implement command and control operations which include establishing a safety zone, incident commander shall assign duties as outlines in SOG 03-318 Vehicle Extrication.

(Moderate Risk-Vehicle Extrication) Technical Rescue- 90th Percentile Times - Baseline Performance			2015- 2019	2019	2018	2017	2016	2015
Alarm Handling	Pick-up to Dispatch	Urban	3:22	2:41	2:44	3:58	3:06	3:13
Turnout Time	Turnout Time 1st Unit	Urban	1:41	1:15	1:49	2:28	0:57	1:31
Travel Time	Travel Time 1st Unit Distribution	Urban	5:00	4:59	5:20	4:31	4:50	4:50
	Travel Time ERF Concentration	Urban	9:06	9:39	7:21	07:59	8:47	7:41
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	7:52	5:31	7:44	06:12	07:57	08:34
			n=42	n=12	n=5	n=7	n=11	n=6
	Total Response Time ERF Concentration	Urban	14:46	10:47	11:16	14:19	13:57	18:25
			n=35	n=12	n=5	n=6	n=7	n=5

2015-2019 Moderate Risk Technical Rescue Aggregate Response Times				
1st/ERF	Urban/Rural	Baseline	Benchmark	Gap
1st Due	Urban	7:52	6:20	1:32
		n=42		
ERF	Urban	14:46	10:20	4:26
		n=35		

TECHNICAL RESCUE HIGH RISK

For 90 percent of responses to high risk_rescue incidents, the total response time for the first unit, staffed with a minimum of 3 personnel is: 10 minutes and 14 seconds. The first arriving unit will determine if rescue equipment is needed and request a rescue unit with the proper equipment. The first arriving unit shall establish command and control to determine the need for water rescue equipment as outlined in SOG 03-321 Water Rescue.

The technical rescue team with an effective response force (EFR) 12 firefighters and officers shall arrive on scene in 14 minutes and 38 seconds, total response time 90 percent of the time and be able to implement command and control operations which include establishing a safety zone, incident commander shall assign duties as outlined in SOG 03-321 Water Rescue.

(High Risk-Swift Water) Technical Rescue- 90th Percentile Times - Baseline Performance			2015-2019	2019	2018	2017	2016	2015
Alarm Handling	Pick-up to Dispatch	Urban	03:57	3:58	02:55	03:38	04:12	04:23
Turnout Time	Turnout Time 1st Unit	Urban	2:27	1:10	00:48	01:23	02:44	03:13
Travel Time	Travel Time 1st Unit Distribution	Urban	06:25	4:34	5:51	06:22	06:54	06:18
	Travel Time ERF Concentration	Urban	12:34	12:46	11:59	15:27	08:36	11:31
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	10:12	8:26	6:59	09:46	10:20	12:42
			n=55	n=10	n=9	n=14	n=10	n=12
	Total Response Time ERF Concentration	Urban	17:46	18:32	15:41	20:30	12:33	16:20
			n=53	n=9	n=8	n=14	n=10	n=12

2015-2019 High Risk – Swift Water Aggregate Response Times				
1st/ERF	Urban/Rural	Baseline	Benchmark	Gap
1st Due	Urban	10:12	6:20	3:48
		n=55		
ERF	Urban	17:46	10:20	7:26
		n=53		

SECTION VI EVALUATION OF CURRENT DEPLOYMENT AND PERFORMANCE

The objectives of this section are to complete a comparative review of agency benchmark (Special), baseline (current) statements, and an overall evaluation including conclusions and recommendations. To date, CFEMS has had some difficulty regularly reporting response times due to computer hardware issues (MDTs). The Department has continued to request funding to replace outdated MDT’s for the fleet. To evaluate performance consistently, CFEMS is drafting a methodology for data retrieval and analysis. The methodology begins with the identification of baseline performance at the 90th percentile. After evaluating the data, the benchmark was established. During analysis, the department identified the gaps between the baseline and benchmark. While some analysis was done, there is a defined need for additional analysis. The type of analysis is ongoing and outlined in the documented methodology “Plan for Improvement” section.

City of Columbus has seen marginal growth between 2010 and 2016. The city had a 3.9% increase in population. During this same time, Columbus Fire and Emergency Medical Services had a 22% increase in calls for service.

RESPONSE TIME ANALYSIS

TOTAL RESPONSE TIME 1ST DUE

Analysis of the first due territory was based upon a unit’s response within their assigned territory. This included all incidents by unit type that included engines, ladders, squads, and ambulances. This analysis

did not break down the incidents by category but used all incidents to get an initial broad measure of first-due unit performance. Total response times were used because this will allow us to see changes to all response time components with one measurement. The 90% percentile total response time was calculated for each year from 2015-2019 by unit type and individual units within their respective categories. An overall first due territory baseline performance for a unit's total response time are as follows:

Engines	00:08:09
Ladders	00:09:42
Squad	00:10:59
Ambulances	00:09:53

The department benchmarks as well as individual unit benchmarks were determined for total response times by territory. These benchmarks were set with a 5% improvement in mind over the 90% percentile unit type total response time. The overall agency benchmarks are as follows:

Engines	00:06:30
Ladders	00:06:30
Squad	00:06:30
Ambulances	00:06:00

Squads, Ambulances and Ladders are missing the benchmark due to larger coverage area. Surprisingly the Ambulances are doing better than expected which may be due to improved cooperation with the contracted private ambulance companies.

TRT

TRT has the resources to meet the deployment objectives of technical rescue; however, a timely response to technical rescue incidents throughout the city is influenced by many factors. The city of Columbus is 220 square miles with a 2016 population of 197,485 residents. The resources of the TRT typically has a long distance to travel. This is most true for responses to the northern and extreme western parts of the city. To help with response times, the TRT was expanded into two teams in 2015, with the implementation of Squad 11 and Engine 11 that are also utilized as a standard engine and service truck.

RELIABILITY

The response reliability for Engines is 85%; 15% of all calls are handled by non-first due units. CFEMS is continuing analysis to determine why units are responding outside of their own first-in territory.

(Figure 6.1 Engine Reliability)

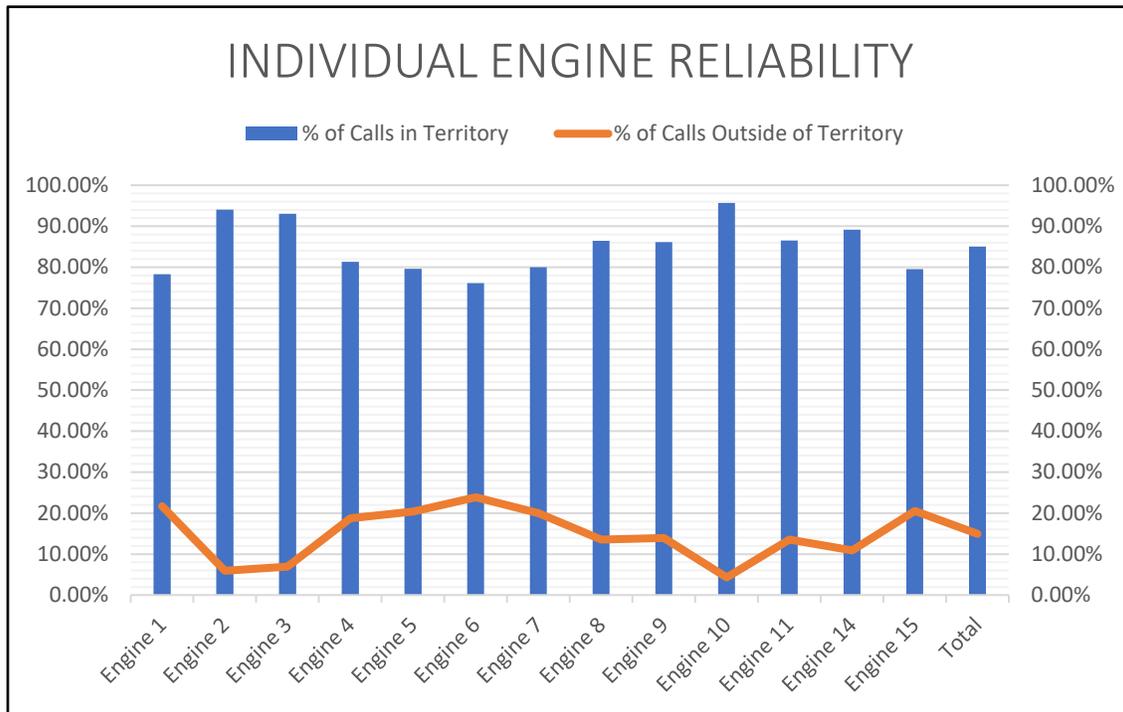


Figure 6.1 Engine Reliability

The Fire Chief has requested the staff to determine the cause of the reliability issues (multiple incidents, OOS, originating unit out of territory), how often they are occurring, and which engine(s) is/are affected by each circumstance.

The response reliability for Ladders is 92%; 8% of all calls are handled by non-first due units. CFEMS is continuing analysis to determine why units are responding outside of their own first-in territory.

(Figure 6.2 Ladder Reliability)

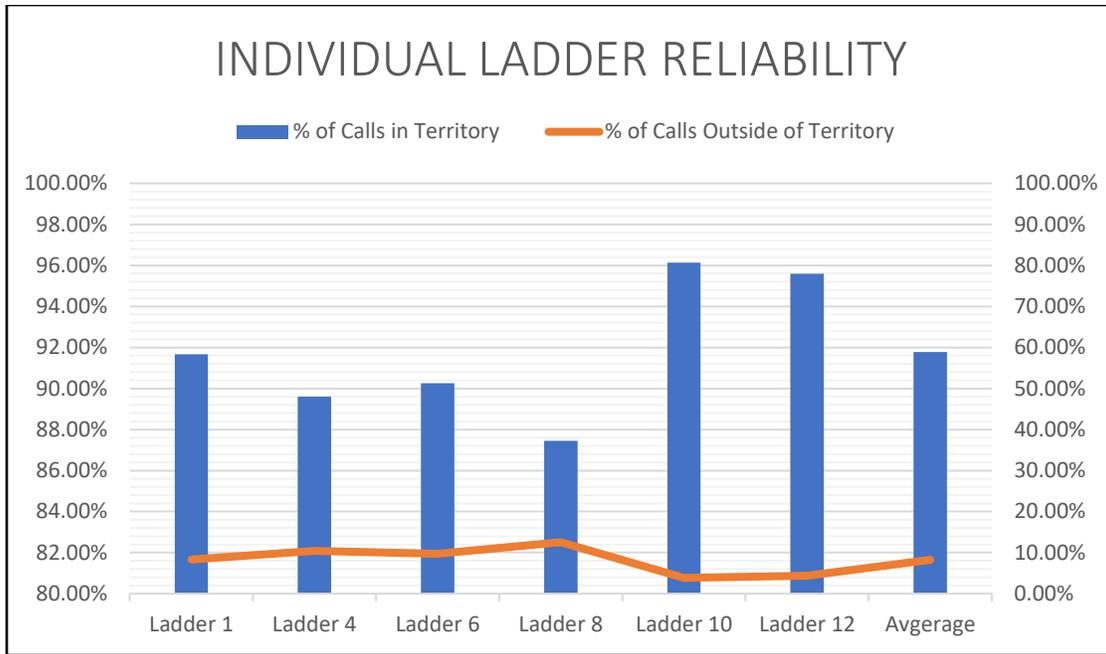


Figure 6.2 Ladder Reliability

The Fire Chief has requested the staff to determine the cause of the reliability issues (multiple incidents, OOS, originating unit out of territory), how often they are occurring, and which ladders(s) is/are affected by each circumstance.

The response reliability for Squads is 95%%; 5% of all calls are handled by non-first due units. CFEMS is continuing analysis to determine why units are responding outside of their own first-in territory. (Figure 6.3 Squad Reliability)

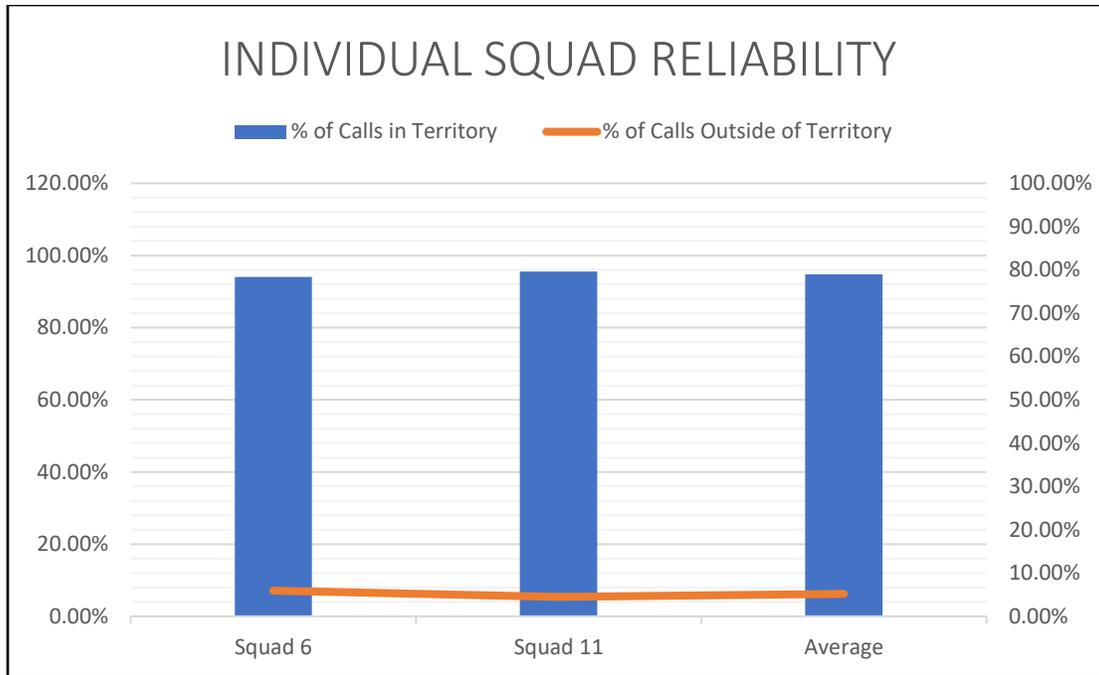
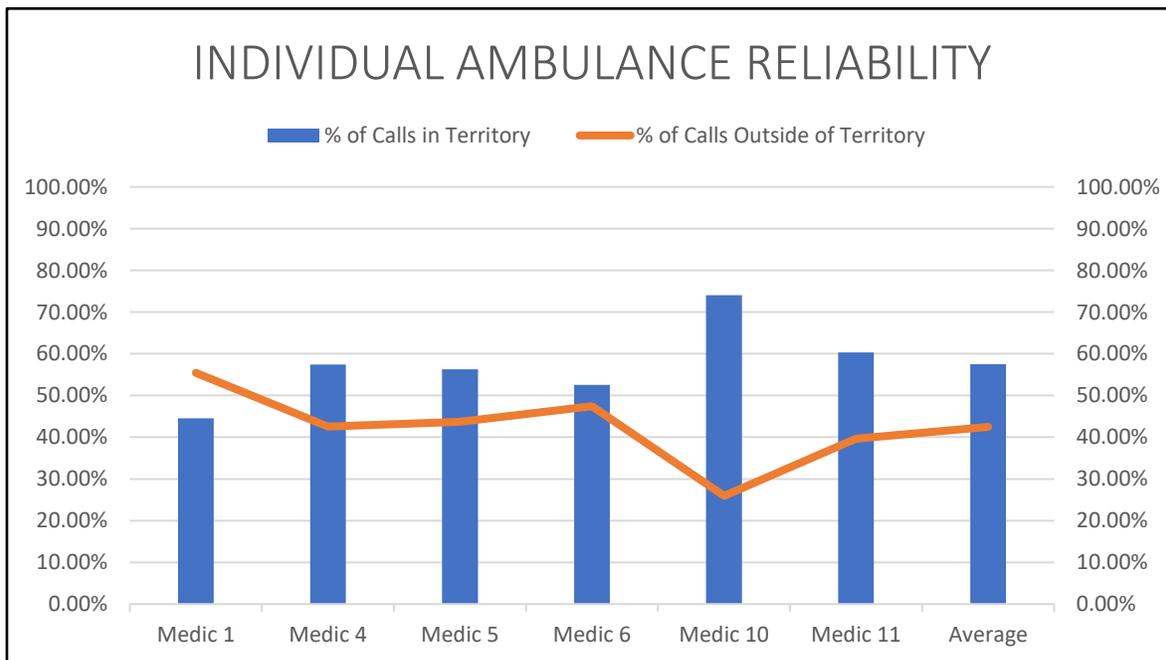


Figure 6.3 Squad Reliability

The response reliability for Ambulances is 58% %; 42% of all calls are handled by non-first due units. CFEMS is continuing analysis to determine why units are responding outside of their own first-in territory. (Figure 6.4 Ambulance Reliability)



(Medic 6 and Medic 3 Private swapped location October 1, 2018 – Currently M06 Private and M03, Chart reflects the first 10 months of 2018)

Figure 6.4 Ambulance Reliability

The Fire Chief has requested the staff to determine the cause of the reliability issues (multiple incidents, OOS, originating unit out of territory), how often they are occurring, and which ambulances(s) is/are affected by each circumstance.

FIRE SPREAD

CFEMS prides itself on the ability to mitigate prevent significant loss due to the spread of fire. The reduction of fire spread correlates to a reduction in property and financial loss. The incident property loss had decreased from a spike in 2018 by 33% in 2019. In respect to incident content loss from 2015-2017 the content loss has decreased each year; 2019 numbers show a decrease of 52% from a spike in 2018. (Figure 6.5 Dollar Loss)

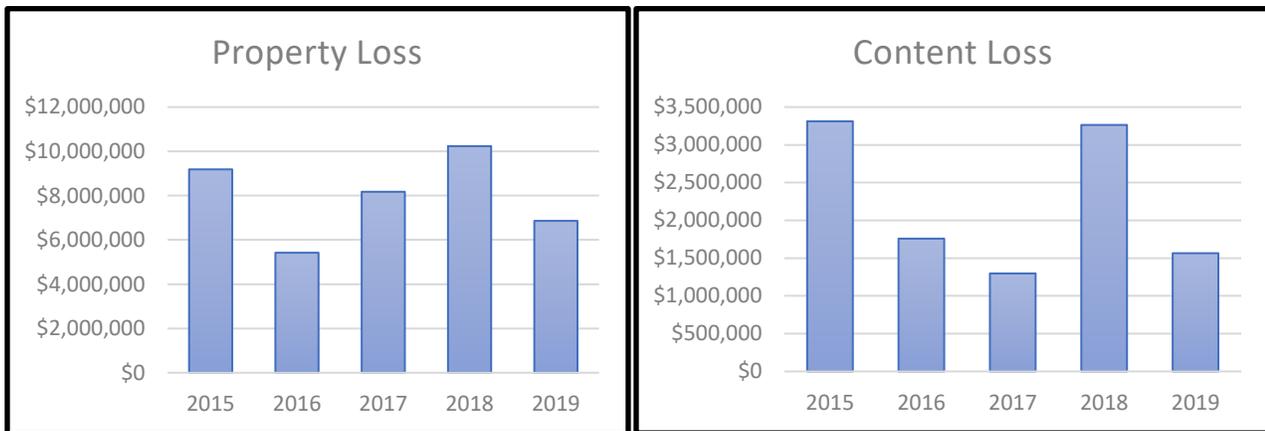


Figure 6.5 Dollar Loss

There are always uncontrollable factors that contribute to the spread of fire, such as new building construction methods, fire friendly building materials, and the combustibility of the objects within structures today. Fires burn hotter, spread faster, and frequently destroy more property than ever before.

FIREFIGHTER INJURY/FATALITIES

CFEMS understands that the department has been very fortunate and has not had an on-scene line of duty death (LODD) since March 26, 1973. CFEMS is continually making cultural changes to increase firefighter health, safety, and wellness. Risk of injury and fatalities are managed through proper training, personal protective equipment (PPE), and actions on the fire ground. All are being trained as safety officers and are trained on incident size-up, initial company operations, and first in tactical decision-making. Many of the standard operating procedures are life-safety focused as well. (Figure 6.6 Injuries)



Figure 6.6 Injuries

The department promotes a healthy lifestyle through annual mandatory health screens. CFEMS hopes to prevent heart-disease related deaths as well as reduce on scene injuries. Critiques are held after large incidents to ensure continuous improvement of performance, identification of unsafe actions, and to ensure proper communications.

CIVILIAN CASUALTY/FATALITY

According to the National Safety Council (NSC) Injury Facts 2018, 1 in 1,399 people will die from exposure to fire, flames or smoke. Fire is the twelfth leading cause of unintentional-injury-related death over all ages. (Figure 6.7 NSC)

Cause of Death	Odds of Dying
Heart Disease and Cancer	1 in 6
Cancer	1 in 7
Chronic Lower Respiratory Disease	1 in 26
Intentional Self-harm	1 in 86
Opioid Overdose	1 in 98
Motor Vehicle Crash	1 in 106
Fall	1 in 111
Assault by Firearm	1 in 298
Pedestrian Incident	1 in 541
Motorcycle Rider Incident	1 in 890
Unintentional Drowning and Submersion	1 in 1,121
Exposure to Fire, Flames or Smoke	1 in 1,399
Choking on Food	1 in 2,618
<small>Source: National Safety Council estimates based on data from National Center for Health Statistics–Mortality Data, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Deaths are classified on the basis of the World Health Organization’s The International Classification of Diseases (ICD). For additional mortality figures, and estimated one-year and lifetime odds, see Injury Facts® 2017 Edition, pages 40-43.</small>	

Figure 6.7 NSC

According to the US Fire Administration (2015), rates per 1,000,000 population:

- National fire death rate: 10.5
- National fire injury rate: 48.9
- Gender and Race: African American males (20.9) and American Indian males (21.8) have the highest fire death rates per million population
- Age: People ages 85 or older have the highest fire death (39.5) and ages 50-54 have the highest injury (63.0) rates

Fire Deaths, Fire Death Rates per Million Population, and Relative Risk of Fire Deaths for Older Adults Ages 65+ (2007-2017)

Year	Number of Fire Deaths Ages 65 and Over	Population	Fire Death Rate (per million population)	Relative Risk
2007	1,296	37,825,711	34.3	2.6
2008	1,254	38,777,621	32.3	2.7
2009	1,130	39,623,175	28.5	2.6
2010	1,200	40,480,893	29.6	2.7
2011	1,215	41,364,200	29.4	2.7
2012	1,143	43,158,388	26.5	2.6
2013	1,234	44,672,695	27.6	2.5
2014	1,306	46,217,114	28.3	2.6
2015	1,332	47,728,537	27.9	2.7
2016	1,314	49,272,330	26.7	2.5
2017	1,444	50,793,923	28.4	2.5

CFEMS has consistently experienced civilian fire deaths over the last 19 years (Figure 6.8 CFEMS Fire Deaths) at a rate of 2.32 deaths per year.

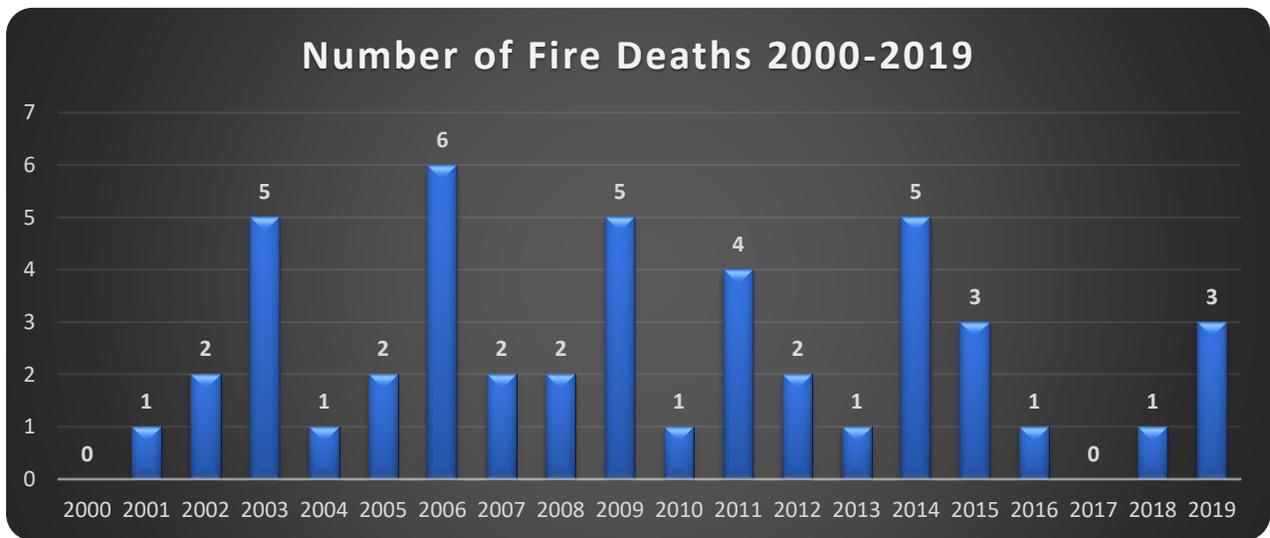


Figure 6.8 CFEMS Fire Deaths

SECTION VII: PLAN FOR MAINTAINING AND IMPROVING RESPONSE CAPABILITIES

The department has typically used an informal method for maintaining and improving response capabilities. CFEMS has done a good job of adopting a formal process for assessing key objectives and formal planning outside of items that are budgetary in nature. CFEMS has many informal planning discussions among the Command Staff. During these meetings, most planning decisions are made.

The department is assessing performance adequacies, inadequacies, consistencies, reliabilities, resiliencies, and opportunities for improvement for the total response area. This performance monitoring methodology will identify future external influences, altering conditions, growth and development trends, and new or changing risks for purposes of analyzing the balance of service capabilities with new conditions or demands.

The performance methodology will support the annual assessment of the efficiency and effectiveness of each service program. In Q4 of 2017, each division was asked to formally submit the measures used to evaluate performance.

This methodology will allow CFEMS to continuously monitor and assess the ability of the existing delivery system to meet expected outcomes and identify performance gaps to develop remedial actions for areas in need of attention. Once these steps are taken, CFEMS will be able to execute a continuous improvement plan for each area that details actions to be taken within an identified timeframe to address existing gaps and variations. Each division will meet with the Chief quarterly to discuss progress made towards their strategic goals and objectives.

GOALS AND RECOMMENDATIONS

After CFEMS became accredited in 2007, the economy continued to weaken leaving the department budget challenged. CFEMS made a commitment to improve on existing services with the limited budgetary funding. The department's benchmarks have been difficult to meet. In the 2016 Strategic Plan, the department concluded that there were opportunities for improvement in the following areas:

- Ambulance wait time at emergency rooms
- Quality control systems and audit process

- Turnover / Retirements
- Accreditation process for paramedic program

CALL PROCESSING

In 2013, CFEMS began working with the 911 center, and the 911 supervisor, to allow dispatch of fire units prior to dispatchers beginning the EMD process.

Although 911 Communications evaluates their own data, CFEMS evaluated processing times transferred to Image Trend. The department found that processing times have stayed consistently high over the past 5 years.

To decrease response times, the department started to conduct quarterly meetings with the 911 center to discuss ways to improve alarm handling time and communication between the two agencies. This process began informally in 2016 and formally in September 2017. Analysis will need to be conducted to determine if any improvements have been achieved. This should be analyzed in the first quarter of 2020.

TURNOUT

In 2013, the department began daily reporting of turnout times to the Operations Chief. Any incident that had a turnout time over 2 minutes was reported. Turnout times have decreased since the implementation of this report.

Quarterly QA/QI meetings began in 2016 to evaluate dispatch procedures, response, and turnout times; mutual and automatic aid; and review any areas of concern related to call handling.

RESOURCE ALLOCATION

Since 2004 the call volume has increased so much that the department sent out a new request for proposal to the private ambulance companies and offered them to put in up to four 24 hour units and one peak unit. CFEMS began utilizing private ambulances to enhance the current ambulances the city has available to respond to requests for emergency assistance. Since that time the number of calls each ambulance responds to decreased. The result of the proposal was three private providers were chosen and two of the providers provided two 24 hour ambulances and the third provider provided two 24 hour

ambulances and one peak load ambulance from 0900-2100 hours. The proposal did exactly what the department hoped it would; it decreased the call volume of each unit and increased reliability.

SUPPLEMENTAL AMBULANCE CONTRACT

CFEMS' supplemental ambulance contract with the ambulance providers was renewed in 2017 and went into effect on March 1, 2017. To ensure CFEMS' response time requirements are met, the new contract specifies:

- Mandatory data reporting to CFEMS
- Bill patients at the current rate for CFEMS
- All equipment shall be equivalent to CFEMS' equipment
- Participate in QA/QI process on care delivery
- Conflict resolution policy

ALS CAPABILITIES

The department provides ALS on all ambulances (city 6 and private 6.5). The department does have one engine company (15) that has a paramedic on the truck 24 hours a day. The department has designated 10 of engines as paramedic engines as staffing allows. All fire apparatus are designated as medical first responder units (MFRU). Tracking of medical information and technologies must be ongoing to ensure that a high standard of care is met at every patient contact and to ensure the best possible protection for EMS providers. The Medical Control Committee was formed in 2004 to foster the relationship between all medical providers in the city. The committee along with the medical director ensures the proper care is given to patients and to work through any issue that may arise.

AMBULANCE WALL TIME

In 2009, CFEMS started noticing our ambulances at the emergency rooms for an extended period. We contacted the medics and emergency department (ED) staff to try to figure out the reason. CFEMS came up with a Wall Time sheet so the department can keep an accurate reason on why units were still at the ER. In 2013, CFEMS purchased Image Trend Software for patient care reports. The department

developed a way to capture this data to find out how long units were holding the wall. The data showed in some cases CFEMS units were holding the wall, also known as boarding, up to six hrs. For a 6-month period the emergency rooms were keeping units over an hour 45% of the time. After compiling the data and arranging a meeting with the hospital's upper management, the wall times have come down drastically. To date, ED #1 is at 53 min at 90th percentile, ED #2 is at 48 min at 90th percentile, and ED #3 is at 41 min at 90th percentile. The EDs have developed new triage practices that have helped in the flow of patients through their E.Ds.

QUALITY ASSURANCE/QUALITY IMPROVMENT

In July 2015, the department implemented a Quality Assurance and Quality Improvement (QA/QI) process for fire calls in the Image Trend reporting program. Section E2 in Image Trend has three service defined questions created to capture additional information for QA/QI. For Fire, Haz-Mat, and Rescue calls, the Company Officer is responsible to get the Owner and/or Occupants email address. If the individual does not have an email address, it is documented that the information is not available in the email text box. Email information are used to distribute a Customer Service Survey to obtain customer feedback. The department receives a low response to these surveys, but the analysis of the information indicates the department is performing very well. Responsibility of the Company Commander /Acting Officer is to review each NFIRS report to ensure the report shows 100% validity and to ensure all pertinent data has been entered into the report. All information is reviewed to ensure it is accurate to include response time data. After completion of their review, Station Officers will change the "Status" (under validity score) field to "Reviewed". The next step is the review of the Battalion Chief /Acting Battalion Chief. They are responsible to review all NFIRS reports within their Battalion. Reports that are marked "Reviewed" are selected and following their review, Battalion Chiefs will change the "Status" (under validity score) to "QA/QI". This process is to be completed no later than the following shift. Staff conducts a monthly review of NFIRS reports to ensure the Quality Assurance process is working to produce accurate/complete NFIRS reports.

TURNOVER/RETIREMENT

Each year CFEMS has vacancies due to retirements, resignations, and terminations. The department does not have any problems hiring positions that are vacant. The critical position to fill are the Firemedic positions. As the chart below indicates of the 26 retirements/resignations in 2015 –13 were Firemedics. Of the 33 retirements/resignations in 2016 -13 were Firemedics. Of the 23 retirements/resignations in 2017-5 were Firemedics. With the ordinance changes that increased paramedic incentive pay to \$6,200 as well as moving Firemedics from a Grade 14 to 15 has positively impacted the number of Firemedics leaving the department.

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Retired	13	6	7	2	4	7	7	2	14	12
Resigned	6	6	12	10	9	19	26	21	15	34
Terminated	1	0	3	0	2	1	0	1	0	0
Firemedics			4	1	4	13	13	5	5	7

ACCREDITATION PROCESS FOR PARAMEDIC PROGRAM

The accreditation process for paramedic programs is complex and lengthy. The following information contained below explains the accreditation process and where Columbus Fire and EMS is in the process. Columbus Technical College had discontinued their EMS training programs in 2003. There were no available paramedic programs in the region. Columbus Fire and EMS began the first in house paramedic program in 2004 to fulfill the need for paramedics in the department and the community. The “*EMS Education Agenda for the Future: A Systems Approach*” calls for paramedic certification based on successful completion of a nationally accredited program of instruction. The Education Agenda’s goal for national EMS certification based on national EMS program accreditation became operational January 1, 2013. The National Registry of EMTs (NREMT) implemented programmatic accreditation as an eligibility requirement for National EMS Certification at the paramedic level. The Commission on Accreditation of Allied Health Education Programs (CAAHEP) is the largest programmatic accreditor in the allied health sciences field. Currently, the only nationally recognized accreditation available for

EMS education is through CAAHEP's Committee on Accreditation of Education Programs for the Emergency Medical Services Professions (CoAEMSP). CoAEMSP has implemented a Letter of Review (LoR) process, which is the official designation that a paramedic program is in the "Becoming Accredited" process. After the initial class is conducted under the LoR, a self-evaluation that culminates in a Self-Study Report is conducted and the program submits a completed Individual Self Study Report (ISSR). The CoAEMSP Executive Director reads the ISSR and completes an Executive Analysis and evaluates the report to determine the Program's readiness to receive a site visit.

Columbus Fire and EMS paramedic program received the LoR designation May 08, 2014 and began the first paramedic program under the LoR on May 19, 2014. The class graduated in February of 2016 with a 100% pass rate on the NREMT paramedic exam. The current class began July 2019 and will graduate August 2020.

Columbus Fire and EMS submitted the Individual Self Study Report (ISSR) June 2016. CFEMS received notification of the forthcoming site visit well in advance. The site visitors conducted their site visit on May 11th and 12th, 2017. This involved visiting with the paramedic program's staff, advisory committee, clinical sites and preceptors, current and graduated paramedic students and reviewing all the required documentation for accreditation. CFEMS received overwhelming positive feedback from the visit, however, the department did have a few areas that needed improvement. A formal findings letter was received September 13, 2017. CFEMS Paramedic Program has submitted a documented and formal response to the findings letter by the deadline of December 1, 2017. CoAEMSP will evaluate the Program's response during its February 2-3, 2018 board meeting. At that time, CoAEMSP will consider the entire accreditation record compiled during this comprehensive review to assess the program's compliance with the CAAHEP Standards. CoAEMSP will formulate an accreditation recommendation to the CAAHEP. After CAAHEP acts on the recommendation, CAAHEP will send the program a letter containing its action taken, Standards citations, if any, and the due date for a Progress Report to CoAEMSP, if applicable. After this process, Columbus Fire and Emergency Medical Service's Paramedic Program will receive paramedic accreditation from CAAHEP. This program is expected to be accredited following the July or August 2018 CAAHEP board meeting.

ORGANIZATIONAL IMPROVEMENT PLAN (5 YEAR)

Population growth and density continues to be a primary factor in the delivery of services to the community. To maintain an adequate level of service, the department must address the growth factor in future deployment and dispatch priorities. In the next 5 years, CFEMS hopes to affect change in the following areas:

- Apparatus Replacement
- Additional Response Apparatus
- Station Replacement
- Additional Personnel for Ladder Trucks
- New Administration Building
- Data Management Staff